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On the cover: Jake Kenyon, left, and his brother, Josh, own and operate Kenyon Pipeline Inspection in Queensbury, New York. They opened the business two years after both lost their iobs, and they've auickly built the business into a successful enterprise. (Photography by Jason McKibben)

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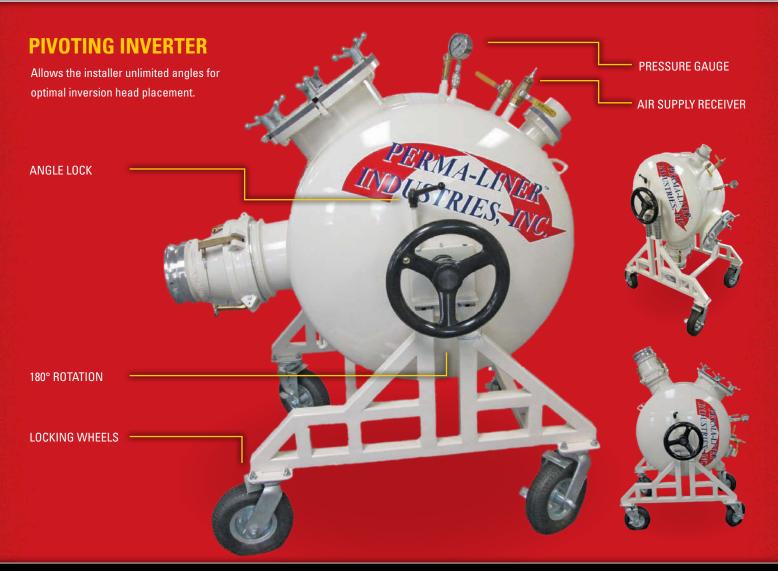


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Small Businesses and Big Success



Luke Laggi

QUALITY WORK, SATISFIED CUSTOMERS AND THE DESIRE TO DO THINGS THE RIGHT WAY SAY MORE ABOUT A COMPANY THAN REVENUE LEVELS OR THE NUMBER OF EMPLOYEES

BY LUKE LAGGIS

his month's issue of *Cleaner* features profiles on two companies that began when their owners were at a crossroads. These small, family-owned companies are the epitome of this industry, and they shine a glowing light on the success that can be achieved with a dream and some hard work.

According to the 2010 U.S. Census, there were approximately 9.7 million small businesses (employing less than 20 people) in the United States. Those companies produced an approximate total annual payroll of \$1.45 trillion,

so clearly small businesses are still an important piece of the American economy. They represent the entrepreneurial spirit of this country and the core values of this industry.

Kenyon Pipeline Inspection, profiled in this issue, is a great example. When brothers Jake and Josh Kenyon were laid off from their jobs, they didn't wait for an opportunity or sit around feeling sorry for themselves; they started their own pipeline inspection business. In two years' time they've taken on four employees, and revenue is growing exponentially.

At the outset, they struggled to even attain funding for the startup business. Banks didn't want to work with them even though they had a clear business plan, but they didn't let that stop them. They turned to a local equipment dealership and were able to work out a rent-to-own arrangement for the equipment they needed to get started.

Several factors helped fuel their professional rebound: a willingness to embrace and invest in new technologies, the rent-to-own deal, the ability to develop and nurture business relationships, and top-notch customer service. Kenyon says that every customer they've worked for has provided at least one qualified word-of-mouth referral. As a result, KPI was able to hire another crew to man its second vacuum and camera trucks in May.

"Emergency" Mr. Plumber is another example. Ted Curtis had worked for his uncle before joining forces with his sister to form their own company in 1990. Curtis initially handled all the fieldwork, with his sister, Tammy Owens, overseeing the office and marketing efforts. The business has grown from one truck to a fleet of 10 vehicles, and they have developed a strong reputation in their service area around Toledo, Ohio.

By their 10th year in business, Curtis had segued from standard residential plumbing to a broader range of services because he saw that as the path to

There are big companies that exemplify growth and success, but for every one of those, there are multiple smaller companies that exemplify the American Dream – to open a small business, be your own boss and provide for your family on your own terms.

a better future. He says the company might not even still be in business today if he hadn't made that shift. A solid 50 percent of the business is now generated from work they didn't perform at the outset.

I've talked about it in this space before, but it's one of the things I really appreciate about this industry. There are big companies that exemplify growth and success, but for every one of those, there are multiple smaller companies that exemplify the American Dream — to open a small business, be your own boss and provide for your family on your own terms. No one in that position, who has built their own business and steered it to profitability, feels any less successful than the CEO of a large company. This industry is full of self-made people who built their businesses from the ground up with hard work, good service and respect for their customers.

Those are the types of stories we're trying to tell in *Cleaner*, and it's a pleasure to be a part of it.

Enjoy this month's issue. C



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BY LUKE LAGGIS

e're constantly updating our website. In addition to everything you see on these pages, the site features a wealth of product and industry information, as well as original features you won't find in print. The following are just a few of the items you're missing if you're not visiting Cleaner.com.

Don't Shy Away When a Crisis Puts You in the Headlines

"Don't let your response become the story" is a favorite saying among crisis communications experts. What you do after a disaster can go a long way in saving or ruining your company. After the July 6 Lac-Mégantic train derailment that killed about 50 people, the train company CEO didn't visit the community until four days later. As one person told reporters, "I feel like he just don't care." That won't happen if you follow these eight basic steps of crisis communication.



Choosing the Best Cable Machine for Your Drain Cleaning Business

Cable machines are essential for anyone in the drain cleaning business. They help tackle difficult obstructions in small- and large-diameter lines. Whether your main jobs are residential or mostly commercial, a cable machine will help you clear a range of blocked lines.

How To Combat the Skilled Talent Shortage

We're at the start of a new talent war. Ask any employer who is trying to recruit for any skilled trade and you will quickly discover that this is becoming their biggest challenge in growing and expanding their business. In a recent Talent Shortage Survey released by temporary employment firm Manpower, nearly 40 percent of U.S. employers are having difficulty finding skilled talent to fill vacancies. According to the study, skilled trades rank as the hardest jobs to fill.

Apologize: The Customer is Always Right

The customer is always right. It's a popular phrase, but every service provider knows that the customer is not always right. In fact, sometimes the customer may be quite unreasonable. These days the motto is so deeply ingrained in the consumer consciousness that it's both a customer expectation and the way in which a company must conduct business to remain competitive. Accepting the fact that sometimes things don't go as planned is part of business. How a business handles a complaint is what matters most.



Reader Pipelines: Technology a Blessing and a Curse

As the owner and president of a pipeline inspection company, Mark Maurier has seen and inspected quite a bit in his 32 years in the industry. The owner of Cam-Trac Inspection Services Ltd. in Edmonton,

Alberta, says staying on top of the latest industry technology, and maintaining strong relationships with his employees and customers helps his sewer and drain cleaning and inspection company stay successful.

> Check out all these stories at www.cleaner.com/ec/2013/October

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TECHNOLOGY, CUSTOMER SERVICE AND GOOD BUSINESS RELATIONSHIPS PROPEL THE RAPID GROWTH OF UPSTART INSPECTION COMPANY BY KEN WYSOCKY



Jake Kenyon removes a crawler camera from a catch basin after performing a CCTV pipe inspection. (Photography by Jason McKibben)

When brothers Jake and Josh Kenyon were unexpectedly downsized from their jobs at a contracting company in upstate New York in August 2011, it would've been easy to get discouraged.

But instead of wringing their hands, Jake, 34, and Josh, 33, sat down over coffee the same day and discussed their options. Both men had always wanted to own their own company, and their abrupt dismissal only bolstered the desire to control their own destiny. So they decided to strike out on their own.

"I think the new camera helped reassure people that we weren't just a seat-of-the-pants company. It cost around \$100,000 with all the accessories, so from the customers' perspective, it looked like we were planning on being around for the long haul."

Jake Kenyon

Two years later, the brothers are doing well with Kenyon Pipeline Inspection (KPI), which provides sewer cleaning and pipeline inspection services in New York and the New England area. They own two vacuum trucks and two pipeline inspection systems, and recently added a second work crew, bringing the company's total employment to six. Through the first half of this year, KPI had earned more revenue than it did in all of 2012, the company's first full year in business.

profile

KENYON PIPELINE INSPECTION, **QUEENSBURY. NY**



EMPLOYEES:

New England



FAST START

Several factors helped fuel their professional rebound: a willingness to embrace and invest in new technologies, such as pipe relining and inspection cameras; an equipment dealership, Joe Johnson Equipment Inc., in Albany, which worked out a rent-to-own deal on the first vacuum truck and inspection camera/camera truck; a zeal for providing top-notch customer service; and the ability to develop and nurture business relationships.

The brothers have built up an impressive fleet of equipment in just two years, worth about \$1 million. KPI owns a 2001 Vac-Con V312LHA vacuum truck, built on a Sterling truck chassis and featuring a 12-cubic-yard debris tank, a 1,500-gallon water tank, a blower that generates vacuum power of 3,425 cfm at 14 1/2 inches of mercury and a pump manufactured by FMC Technologies Inc. (80 gpm at 2,000 psi). They also have a Vactor 2100 vacuum truck, built on a 2009 Mack truck chassis and featuring a 12-cubic-yard debris tank, a 1,500-gallon water tank and a Vactor blower (8,000 cfm at 16 inches of mercury) and pump (80 gpm at 2,000 psi).



KEEPING AN EAR OUT FOR TROUBLE

Sometimes the lessons learned early in a career stick like grease in a pipe. Such is the case with Jake Kenyon, the co-owner of Kenyon Pipeline Inspection in Queensbury, N.Y., who recalls how a previous employer refused to put radios in his company's vacuum trucks.

"He felt that if you were listening to the radio, you weren't listening to the truck while you're driving down the road," Kenyon recalls. "One of the most important things you can do to maintain your truck aside from the usual things, like greasing every fitting as often as possible, changing the oil on time and maintaining hydraulic-fluid levels – is listen to it.

"When you drive a truck consistently, you can hear when things change," he adds. "If they sound different - say, a strange tone or vibration or squealing noise – that's the first indication that something isn't quite right."

For the sewer cleaning work that makes up the bulk of KPI's business volume, Kenyon says he prefers a vacuum truck with a pump that provides a minimum flow of 80 gpm. KPI crews are usually working in larger pipes, so the volume of water produced is critical in terms of effectively moving sand and debris.

"For our next truck, I'd like 100 gpm or more," he says. "We work primarily in municipal lines that are 8 inches in diameter and up, so the volume of water you use is what moves dirt. With all the horrible weather we've had up here lately, we've been doing a lot of stormwater work, like culverts inundated with sand."

As for the radios, Kenyon admits that both of KPI's vacuum trucks have one. "They came with radios, so I'm not going to just pull them out," he explains. But he still urges his drivers to stay tuned to more than just the music on the radio.

In addition, the company owns a 2007 Sprinter van that carries a Rovver X inspection-camera system made by Envirosight; a 2003 Freightliner FL70 15-foot box truck that carries another Rovver X camera, as well as a lateralreinstatement cutter made by Schwalm Robotic GmbH; a 2003 Isuzu 15-foot box truck; a late 1990s Ford box truck; a VeriSight push camera, made by Envirosight, used for inspecting residential sewer laterals; and a pipe relining system from Perma-Liner Industries LLC.

The company's customer base is about 90 percent municipal agencies and 10 percent commercial/industrial customers. Inspecting and cleaning sanitary and storm sewers accounts for about 70 percent of the company's revenue; pipe relining generates about 30 percent, Jake Kenyon estimates.

After developing a business plan, talks with various banks about funding a business startup went nowhere fast. So the rent-to-own arrangement with Joe Johnson Equipment was critical, Kenyon says.

"We gave them a down payment and that's how we got started," he says. "We couldn't have gotten started without that. There was no standardized funding out there for startup companies. We really lucked out that they had faith in my brother and me."

Steve Webster, director of New York operations for Joe Johnson Equipment, says it was a no-brainer because they had contacts and were already lining up work. "All they needed was the equipment to get them up and running," he says. "Not only did they stick their necks out and go for it, but they've been very successful in a short period of time."

The brothers' startup aspirations were aided by relationships with municipalities, developed over the 15 or so years they'd already spent working in the industry. The duo started to reach out to those potential customers, explaining the services they could provide and the equipment they'd purchased. Kenyon said the latter was critical to obtaining business.



"I've learned that you have to spend money to make money," he explains. "When we bought our first [pipeline] camera, we bought what we could afford. It wasn't the newest technology, but it was better than what many competitors owned.

"We take a lot of pride in everything we do. It's our name on the trucks. We always go above and beyond, no matter what project we're on."

Jake Kenyon

"But within the first four months, we were doing well enough that we could upgrade to the Rovver X, which offers better video quality and improves productivity," he continues. "We let people know that we were reinvesting in the company to provide customers with the best video quality available. The better data and quality of services you offer, the more people want to use you.

"I think the new camera helped reassure people that we weren't just a seat-of-the-pants company," he adds. "It cost around \$100,000 with all the accessories, so from the customers' perspective, it looked like we were planning on being around for the long haul."

TREATING PEOPLE RIGHT

Providing reliable customer service has also been key to the company's growth. Kenyon says that every customer they've worked for has provided at least one qualified word-of-mouth referral. As a result, KPI was able to hire another crew to man its second vacuum and camera trucks in May.



Josh Kenyon operates a crawler camera as he performs a CCTV pipe inspection. RIGHT: Heavy root intrusion is clearly visible on the monitor.

"It was pretty nerve-racking - just as bad as starting out fresh," Kenyon says about adding the new employees. "Now we rely more than ever on our employees, rather than just ourselves, which means giving up some control over things. That's hard to do.

"But we take a lot of pride in everything we do," he adds. "It's our name on the trucks. We always go above and beyond, no matter what project we're on. A lot of companies don't like to let their employees solve problems ... or when they run into a situation they've never dealt with before, they tell their customers there's nothing they can do.

"But we take time to analyze situations and suggest solutions. Maybe we'll come back to a job at non-peakflow hours and see what's going on, for instance. We try to think outside the box and provide solutions to problems."

For example, last February, KPI got an emergency call at 10 p.m. on a Saturday night from a municipal customer with a blocked easement sewer. There was more than a foot of snow on the ground and temperatures had dipped below zero. Nonetheless, a KPI crew headed out. (continued)





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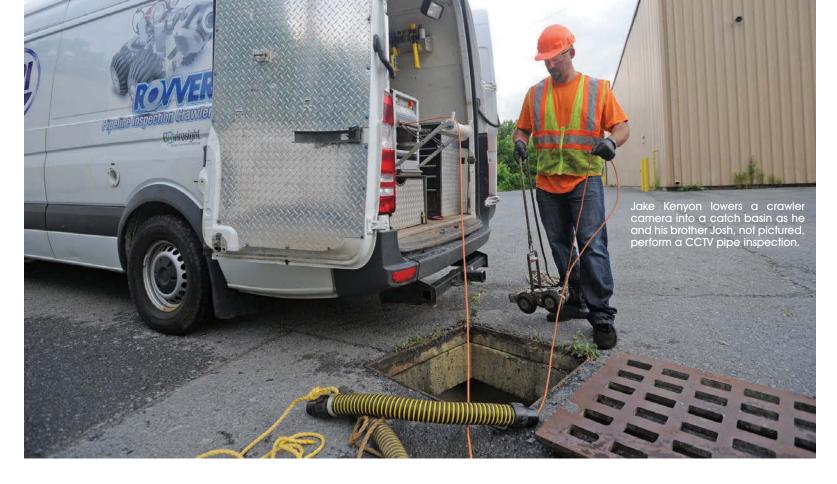
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The line contained so much grease that inspecting it by camera was impossible. Moreover, the sewer line was fully surcharged, which blocked access to the two nearest upstream and downstream manholes. So the KPI crew attacked the blockage with various nozzles. They finally broke through the clog with a front-spray, chisel-point nozzle.

"It was like working while blind," Kenyon notes. "We finally finished up at 2:30 or 3 a.m. Later we went back and televised the line, which revealed that a pipe had shorn off, allowing sand to enter the pipe, which congealed with the grease. They ended up excavating and putting in a new pipe."

"We're constantly monitoring things so that we don't take on more than we can chew. On the other hand, in order to grow, we need to take on bigger projects."

Jake Kenyon

DEVELOPING NEW BUSINESS

Kenyon says he and his brother strive for regular contact with local municipal engineers to see what kind of infrastructure rehab projects are in the works. "A lot of it requires just talking with past and potential clients," he points out. "They're always looking for ideas ... if they're asking questions about different ways to stop water [inflow and infiltration], then chances are they may be starting an I&I study. It's important to stay in contact and try to anticipate their needs."

Developing a website also has helped the company grow. Kenyon says he had low expectations about the value of an Internet presence, but that it's generated more job leads than he anticipated. Initially, he says he and his brother just wanted an Internet presence so people could easily find basic information about the company and its services if they didn't want to take the time to call.

"People are very tech savvy now," he says. "There are a lot of newly hired engineers [at municipal agencies] who are just out of college and are used to going to the Web for everything. Speaking for myself, I find that if I can't find a company on the Web, I'm a little leery myself. People just expect it. Overall, I'd say we've obtained six jobs off the website from customers who we've never worked for before, so it was well worth doing."

READY FOR THE FUTURE

Looking ahead, Kenyon says one of the company's biggest challenges is growing at a manageable pace. He believes that when companies grow too fast, core values - like providing the best service possible to clients in timely, efficient fashion and finishing projects on time and on budget - tend to slip.

"We're constantly monitoring things so that we don't take on more than we can chew," he explains. "On the other hand, in order to grow, we need to take on bigger projects. And to

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do that, bonding becomes an issue, and so does the cost of insurance. Plus you need more equipment and employees, too. You almost have to make sure you have way too much work for your current crews to do before you consider adding another crew.

"We felt comfortable making the first jump [adding a second crew] because we were getting to the point where we were thinking about turning work away," he continues. "You can't do that. If you turn away customers, they won't necessarily call back tomorrow." C

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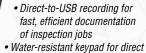


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Put Up Your Guard

DEVELOPING A HIGH COMFORT LEVEL AND FAILING TO SET UP A SAFETY ZONE AROUND OPEN MANHOLES CAN LEAD TO DISASTER

BY JIM AANDERUD

efore any of us worked around sewers and storm drains, we hardly gave a second thought to manhole covers in the street. But a funny thing happens when you enter the world of pipeline cleaning, inspection and rehabilitation: you begin to notice every manhole cover.

Suddenly, a world that was once completely invisible comes to life. You begin to identify the markings on manhole covers as being either sewer or a storm drain and find great pleasure in sharing this knowledge with others. Even on a family outing at Disneyland, you can't help but spot the manholes and boastfully point them out to your wife and kids.

Collection system personnel in particular become very familiar with manholes. Since their primary job is to keep the sewers flowing, much of the work they perform requires access through a manhole. Whether it's inserting a nozzle in order to clean a pipeline, or introducing a camera to inspect it, you remove manhole lids numerous times throughout the day.

Manhole depths can differ greatly, especially in areas where topographical elevations vary. Some can be very shallow and only extend a couple of feet underground, while others reach depths of 50 feet or more. They are very

The possibility of falling into a large trunk line sewer with heavy flow is of even greater concern. Some trunk lines are very large and carry a significant volume of wastewater. It's not uncommon to see 60-inch or larger trunk lines carrying thousands of gallons per minute and flowing at speeds in excess of 5 feet per second. Falling into a manhole under these conditions will carry an individual away with little chance for survival.

Manholes can also be dangerous for pedestrians. Open manholes are a natural curiosity to those who have never seen them, and children are an everpresent danger. Curiosity will draw them for a look inside. But unlike adults who tend to stand back a foot or two while bending over to look in, children have no fear and will walk right up, some even with their toes hanging over the edge. Just one misstep or a slight push from a child behind could result in a complete catastrophe. Can you image what it would look like to have every local television station leading with this story while your company or agency name is plastered across the screen as the culprit?

Safety must be the highest priority for every crewmember working in and around manholes.

Pipeline inspection, line cleaning and rehabilitation all involve tasks that take individuals away from the manhole opening itself. These are the times when bystanders are able to approach without being shielded from the danger. Ideally, there should always be someone protecting the manhole, but that isn't always possible or practical.

important structures that allow critical maintenance on our pipelines, but they are also very dangerous both to the individuals working around them and pedestrians walking near them.

OPEN MANHOLES

During cleaning, inspection or rehabilitation work, manholes must be left open in order to facilitate access to the pipelines below. Because of the nature of the work, they are sometimes left open for extended periods of time. Working around these open chasms becomes so natural that few seasoned workers give it a second thought.

But open manholes are dangerous and can pose a serious hazard. One careless misstep can have catastrophic consequences. A worker who accidently steps into a 24-inch manhole could easily break a leg. A smaller person or even a child might not be so lucky. A 36-inch manhole opening is a whole different story. Accidently stepping into an open manhole of this size could be fatal. Because of its large diameter, there is nothing to keep someone from falling straight to the bottom.

WORKER SAFETY

Working around open manholes requires strict communication rules. It begins by notifying each individual that the manhole has been opened and is now a potential hazard. This awareness will alert coworkers that they must be careful of where they step and that they need to be alert and aware of unauthorized individuals entering the work area.

Communication is critical for the safety of the workers. Noise from surrounding traffic and running equipment can make it difficult to hear, so physical communication must be incorporated in order to make coworkers aware of your movements. It may be necessary to make sure coworkers know when you intend to step within their personal space. An unintentional bump could knock someone into the manhole, but clear communication will ensure that a safe working environment is maintained and unintentional collisions are avoided.

Pipeline inspection, line cleaning and rehabilitation all involve tasks that take individuals away from the manhole opening itself. These are the times when bystanders are able to approach without being shielded from the danger. Ideally, there should always be someone protecting the manhole, but that isn't always possible or practical.

MANHOLE BARRIERS

At this time, there is no legislation that requires manhole safety devices. Most companies and agencies do not require any type of protective barriers. Perhaps though, it is time to begin looking seriously at making open manholes



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safer, and there are some physical barriers that achieve that goal.

Manhole safety barriers have been around for many years. These devices are like fences and provide a protective barrier around the manhole. They have three sides and provide 270 degrees of protection, or 360-degree protection when chains are used to close off the open end.

A manhole safety barrier is not perfect, but is certainly superior to having nothing at all. It does provide a warning and keeps bystanders a safe distance away. Its major drawback is the fact that it is heavy and difficult to store. Some of the older models were made of steel and were extremely heavy, but many newer models are made of aluminum and are much lighter. Still, they are large, bulky and difficult to store on vehicles.

Safety manhole covers are devices that have gained popularity in recent years. They provide a mesh that lies over the top of the manhole, but still allows cable from a CCTV camera or hose from a jetter to enter the line. This device also doubles as a top-hole roller. Because of its design, this product is perhaps more ideal for the pipeline cleaning and inspection industry.

If a manhole protection device is not available, a protection barrier can still be created with traffic cones. Placing cones side by side around the circumference of the manhole opening creates a visual barrier, and even though this method does not provide a physical restraint, it will still keep most people from stepping too close to the open manhole. By placing cones at least 2 feet back from the manhole rim, you establish a safety circumference that will ensure bystanders remain outside the danger zone, even when they bend over to look in.

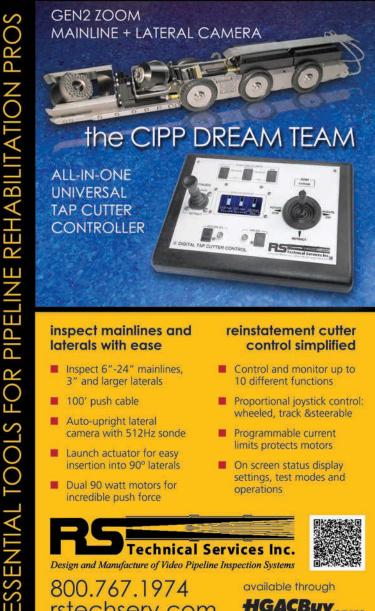
Unfortunately, some people will not be deterred by the cones and will still step over them in an effort to get a closer view. In this case, there is no substitute for vigilance and verbal warnings.

Manhole safety must be taken very seriously. While incorporating some of these suggestions will help minimize the hazard that an open manhole poses and help eliminate the potential for catastrophe, there is no substitute for training and awareness of safety procedures around open manholes. ©

ABOUT THE AUTHOR Jim Aanderud is owner of Innerline Engineering, a video pipeline inspection company based in Corona, Calif.



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A New Mindset

FOLLOW THESE FOUR SIMPLE STEPS TO HELP YOUR STAFF ADAPT TO CHANGES IN THE WAY YOU DO BUSINESS

BY CHUCK INMAN

re you kidding me? Weekly meetings?" Riley was questioning why Clint, his boss, was requesting weekly staff meetings instead of the long-standing monthly meetings. "Is this the beginning of a new form of micromanagement? Why do we have to change now?" Riley asks himself. "It's such a burden with no apparent

Clint notices Riley's questioning response about the weekly meetings. The weekly meetings are part of the changes coming to the department. If the team didn't meet weekly, they would struggle implementing the new software for customer relationship management. Clint needs Riley on board with this change. If Riley would be supportive, it would help management gain support from the rest of the team with this new software.

"If only there was a way to get my team to be more nimble when it comes to change," Clint muses as he walks out of the office at the end of another long day.

Change – it has amazing stopping power. The very mention of change will get people digging their heels in to protect how they currently do business.

When we undergo change there are three basic phases involved. Each one has an effect on our ability to make the change successful.

Don't assume because you told people once they fully understand the reason and process for change. Communicate consistently and often. Use different media. Don't assume an email or website will be read and all questions will be answered.

The Current Phase is our comfort zone where we perform our day-to-day activities with confidence. We understand the workflow processes, how to multitask and anticipate the pace of the work. Our sense of worth, productivity, value and status are recognized from being competent in our role in this phase.

Next is the Action Phase where we begin to develop new behaviors, values and attitudes. We are now being asked and asking employees to look at performing our work differently, which will disrupt the current way of doing things. We aren't as sure of the outcomes of our work in the Action Phase.

Finally we move into the New Phase, which is the final stage of crystallizing our thoughts and adaptation of ownership to the new change. The New Phase is where we will be working in the future. We have questions as we enter this New Phase:

- Will we be recognized for our contributions?
- Will we have the ability to provide input and have a share of voice?
- Will we be able to provide value and be flexible?

Here are four key steps that will help people move through the three key phases of change.

- 1. Create a clear view. Explain why the change is taking place. Understand where you are going and why it is important for the team to reach the destination. Be able to articulate clearly so members of your team understand the reason for the change. Also explain the value of their role in this change process.
- 2. Move quickly. One of the success strategies for nimbly moving through change is to get to the New Phase as quickly as possible. Get started by moving through the Action Phase and find a footing in this New Phase where you can begin to experiment with new processes. Look at the resources and skills you are bringing with you to assist in this change process. Your problem-solving, analytical, and time-management skills are all tools that will help with the change. Recognize some things will be ending, some will be continuing and some will be new because of the change. When you can identify those items it takes the fear of the unknown away.
- 3. Communicate continuously. Don't assume because you told people once they fully understand the reason and process for change. Communicate consistently and often. Use different media. Don't assume an email or website will be read and all questions will be answered. Regularly ask for feedback on what's working and what's not working. Ask members of your team to describe to you the reason for change and why it is important. This will enable you to determine if they understand why the change is taking place. Continue this exercise throughout the phases of change as reinforcement.
- 4. Recognize early achievements. Try to attain small victories and accomplishments early and celebrate these small wins quickly. Don't wait for monthly or quarterly reviews. Recognize the accomplishments on a weekly or even daily basis for some milestones. Give credit where credit is due. You build value and show yourself and others they have the ability to act and make progress in the change process.

Clint sat down with Riley and discussed the importance of changing to weekly meetings. He explained the weekly meetings would provide Riley and his team more focus, accountability and empowerment implementing the new software program. Instead of micromanagement, it would allow them to establish credibility quickly and be more productive moving through the change process. Once Riley understood the reason behind the weekly meetings and their importance, he accepted the change.

When you understand the three phases of change and how to navigate through them, you can be successful in moving through change to reach your objectives. c

ABOUT THE AUTHOR

Chuck Inman is a leadership and emotional intelligence specialist. He is a keynote speaker, trainer, coach and founder of Crystal Clear Motivation, LLC. To find out more information about Chuck and his programs please visit www.ChuckInman.com.



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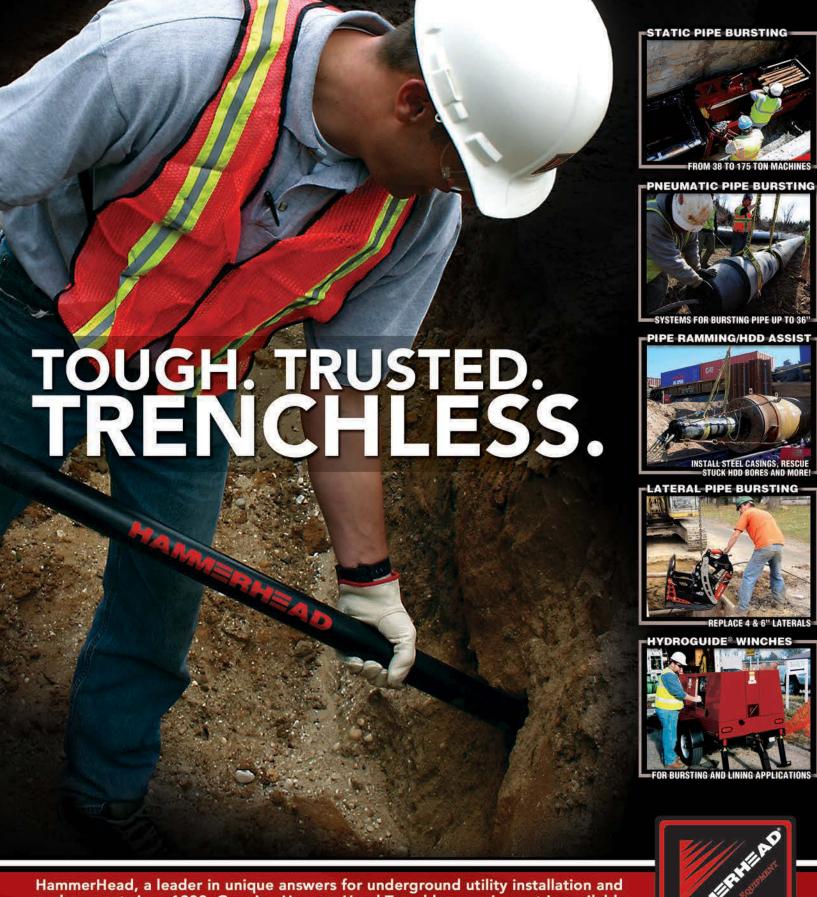


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BROTHER-AND-SISTER TEAM ESTABLISH COMPANY AS GO-TO SERVICE PROVIDERS IN RESIDENTIAL AND COMMERCIAL PLUMBING EMERGENCIES

BY MARIAN BOND

Ted Curtis first stepped into the industry as a plumber with his uncle's company. When he was ready to strike out on his own, he partnered with another family member, sister Tammy Owens. Together they formed "Emergency" Mr. Plumber, and they've been putting out fires ever since.

Curtis initially handled all the fieldwork, with Owens overseeing the office and marketing efforts. The business has grown from one truck to a fleet of 10 vehicles and a prominent position within the 30-mile radius they serve around Toledo, Ohio. By the tenth year in business, Curtis had segued from standard residential plumbing to a



broader range of services, including CCTV, locating, jetting, drain cleaning, and sewer repair and replacement with the requisite equipment, including excavators and dump trucks.

The current customer base is 85 percent residential and 15 percent commercial. "Emergency" Mr. Plumber serves Northwest Ohio and parts of Eastern Michigan, operating out of a one-acre facility with 3,000 square feet of shop and office space in Toledo.

DEFINING POSITION

Directional boring was becoming a popular solution to replacing residential sewer, water and conduit lines in the late 1990s, and after hiring a subcontractor to take on a specialized job for a customer, Curtis decided the

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service was something that would benefit their growing customer base. He added directional boring to the mix, and his Ditch Witch boring equipment quickly became one of the most useful items in his toolbox.

"For the private residences this is a good solution as they don't want to tear up the yard or driveway to put in a new or replacement line," he says. "With our equipment we can pull a line as small as 1/2 inch up to 12 inches. With directional boring we simply go around or bypass the old pipe. We have pulled up to 200 feet but typically it would be 100 feet or less. We recently bored a 6-inch storm drain to a parking lot manhole, a distance of 30 feet. We set up in a grassy area, and bored under the parking lot to the manhole with SDR 35 PVC. At the manhole we drilled a hole and connected the pipe. Then we cemented it in place."

"We will be installing a water heater one day, and the next televising and jetting a drain or preparing to do a directional bore to install a new sewer line. These days it is all about diversification."

Ted Curtis

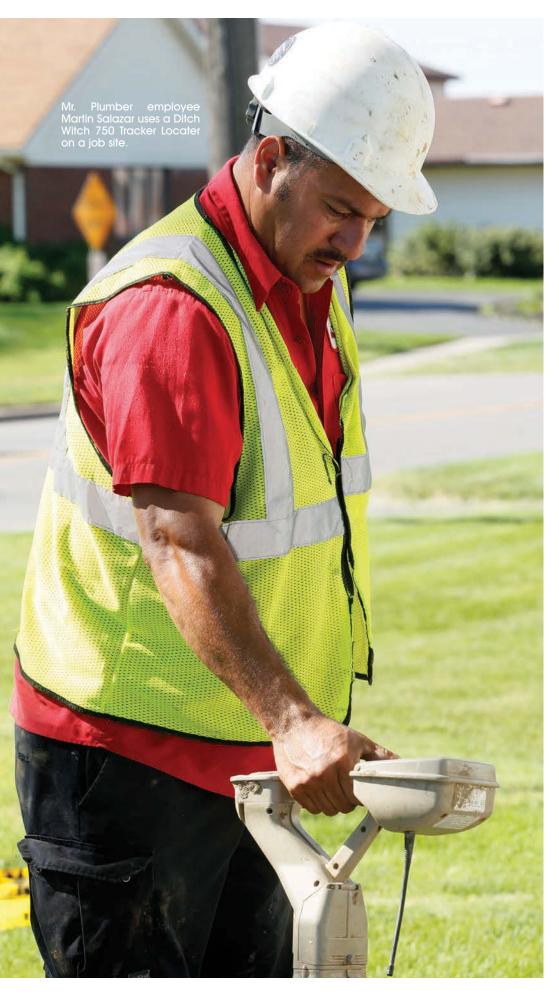
With the Ditch Witch equipment they are able to bore down to the depth they want and then the rod runs parallel to the prepared exit. In a residence that has a basement or crawl space, the equipment is set up at the curb and the bore goes across the yard and beneath the house. The new pipe is pulled from inside the home to the outside location. In most cases a residential project will be completed in one day with two technicians on site. For replacement lines they use both copper and plastic.

There are two pieces of equipment from Ditch Witch: the JT920 is for larger projects on 4- to 12-inch lines, and the JT520 goes out more frequently for lines 4 inches and smaller. This machine is smaller and is much easier to handle in tight quarters common on residential jobs.

The company promotes its directional boring services through print and word-of-mouth advertising. Customers include homeowners as well as electrical and other plumbing companies, for whom "Emergency" acts as a subcontractor. Curtis says they get calls for the service three to four times in any given week, and he has a crew of specially trained technicians to operate the technical boring equipment.

Curtis says their inspection and locating equipment goes out on an asneeded basis and is not regularly carried on the service vans, but they are frequently in use.

"We have been using Electric Eel Mfg. for a variety of their equipment, and this has been a plus for us as they are located in Springfield, Ohio," Curtis says. "Their sales rep travels through often and if we have a problem with equipment he will pick it up and take it in for repair. That has been a big benefit for us, and it saves on shipping costs."



The Electric Eel equipment includes an eCAM inspection camera, and Model C and Model N sectional drain cleaning machines. A Radiodetection locator and nozzles from Aqua Mole Technologies round out the list.

"When it comes to equipment, there is always the need to accumulate more as money becomes available and there is a demand," Curtis says. "Just like with the camera, it was a big expense up front, but we need it and we utilize it frequently."

THE PLAYING FIELD HAS CHANGED

Curtis, reflecting on the industry and his own company, believes the company might not even still be in business today had they not ventured into a wider selection of services. A solid 50 percent of the business is now generated from work they didn't perform at the outset.

"We will be installing a water heater one day, and the next televising and jetting a drain or preparing to do a directional bore to install a new sewer line," he says. "These days it is all about diversification."

Curtis says there is so much emphasis on the "do it yourself" culture, and with the big box stores offering classes, the industry has changed significantly. In his operation, both aspects of service are essential. "One hand feeds the other," he says.

Clay and tile pipe are typical in the company's service region, along with some cast iron that has been in the ground 30 to 60 years. Lines are up to 8 feet deep. Root intrusion is a common problem, and they regularly deal with toilets clogged by baby



From left, Diane Brackett, Ted Curtis and Tammy Owens of Emergency Mr. Plumber stand in front of the company's converted fire engine, while Rich Chadwell, Dean Bumpus, Martin Saazar and George Buder III have a seat up top.

wipes and feminine products. Electric Eel drain cleaning tools fit the bill for these frequent situations.

Accessing residential clean-outs is another common problem. They're frequently located in basements and require the plumber to drag heavy and sometimes dirty equipment through the house.

"It's always good to get another opinion. We don't like to see companies trying to upsell when there is a less invasive solution. This hurts the industry, as do the many regulations we have to deal with as a small business."

Ted Curtis

Curtis often encourages the homeowner to solve the problem and facilitate proper cleaning of the line by having a 6-inch clean-out installed outside the home.

"This is a simple enough procedure and not that costly when you consider there will be easier access to the line. The new clean-out provides access to the





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3-inch clean-out into the basement, and to the larger outside line as well."

Curtis says their five service vans each carry an inventory of around \$3,000, and the most essential tool is still a good old-fashioned pipe wrench from RIDGID. "We always have one on hand," he says.

Service vans include a 2005 Ford E350 SD. 2001 and 2005 GMC Isuzu box trucks, a 2006 GMC Savana with box, and a 2011 GMC

"The most satisfying element of my daily job is when I go out to a customer to give an estimate, and I know the customer likes me as much as I like him or her, and I am awarded the opportunity to do the job especially when I'm chosen over my competitors."

Ted Curtis

Terrain. A 1991 Chevrolet Kodiak van — a big ambulance they call the tank — is used for the bore machine. They have two Takeuchi mini excavators, a trailer jetter, which Curtis built, and a number of other pieces of equipment.

SIZING UP ESSENTIALS

In today's marketplace, with the importance of customer satisfaction and the competitiveness of the industry, Curtis likes to recommend people get three opinions as to the solution for major projects.



PREPARED FOR EMERGENCIES

When Ted Curtis found himself a somewhat frustrated wannabe fireman working as a plumber, he found a unique way to satisfy those cravings.

"As a kid I was fascinated with fire trucks and ambulances," he says. "When my sister and I were planning to open our company, I was looking for a service truck and happened to run across a 1991 Chevrolet Kodiak ambulance, which became our first service vehicle. Today we have two ambulances in our fleet. Back then I was also looking for a fire engine and found a 1970 GMC fire engine in Saginaw, Mich. It all kind of came together to form the name of the company.

"My work truck is a 2005 Ford E350 SD, and the stretcher has been modified to serve as my tool bucket. I don't always take the stretcher out but if I'm in a parking lot I sometimes will."

Curtis says they actually used the fire truck as a service vehicle for a few years pulling heavy equipment, but primarily it has served as a promotional piece. It sits on a prominent spot at their property, and has appeared in numerous parades in their community.

At a recent Toys for Tots collection event, the "Emergency" Mr. Plumber fire engine led Toledo Mayor Michael P. Bell, who was on his motorcycle, along with 1,000 other motorcyclists on a 15-mile trek on the I-75 Expressway to kick off the toy drive. It is safe to say competitors cannot quite match this rolling billboard.



"We run into situations time and time again where a contractor is cabling the sewer and finds a break and makes recommendations and the customer is concerned that the cost will be great," he says. "It's always good to get another opinion. We don't like to see companies trying to upsell when there is a less invasive solution. This hurts the industry, as do the many regulations we have to deal with as a small business."

Curtis praises his office manager, Diane Brackett, for her outstanding service and attention to detail. "She has been a rock for us. She babysits all of us, and represents us very professionally."

Technicians, all plumbers, have a lengthy tenure with the company, but what concerns Curtis is the younger people who show an interest in the profession.

"The problem is the younger guys seem to want everything handed to them," he says. "They don't understand they need to start at the bottom and work their way up through the trenches. It is sad and it is a problem. An example, the last young fellow we had on the crew a couple years ago refused

Diane Brackett working in the office at Emergency Mr. Plumber in Toledo,

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Martin Salazar pulls a new 60-foot piece of 3/4-inch copper roll pipe through the exit pit on a job in Washington Township, Ohio.

to go out on a job because he said the weather was too cold. That was his last day with us.

"We actually rarely see anyone coming in the door looking for work, yet Toledo is not a very thriving area. People need jobs."

FROM THE TOP

Curtis gives credit for much of the success of "Emergency" Mr. Plumber to his sister. "People tell me all the time that if it wasn't for Tammy we might not be here today. We see so many companies with a husband and wife at the helm. My sister is the person who has proven that one guy cannot do it all. It's good to have a woman providing input. Many will identify with that I am sure."

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Cut to the Chase

TURBO CHAIN CUTTER NOZZLES CLEAR ROOTS AND OTHER OBSTRUCTIONS FROM EGG-SHAPED PIPES

BY ED WODALSKI

lthough not entirely new, the Turbo III chain cutter cleaning nozzle from USB - Sewer Equipment Corp. is unique, and created its share of show floor buzz at the Pumper & Cleaner Environmental Expo in Indianapolis. Designed to clean oval or egg-shaped pipelines, the Turbo chain nozzle features a teardrop-shaped skid made of tempered stainless steel for use in pipes up to 48 inches in diameter.

"What you do first is you use a nozzle to clean the bottom of the pipe, which is usually a hydro nozzle or bottom cleaner," says Reinhart Laimer, president of USB-Sewer Equipment Corp. "How do you get the roots, grease and calcium buildup removed from an oval-shaped pipe? By extending one of the skids according to the diameter of the pipe," he explains. "You center the chain cutter and scour with the chain the roots and the grease, which is primarily on the top of the line."

Operating at approximately 6,000 to 10,000 rpm, the cutter spins 360 degrees at 2 o'clock down to 4 or 5 o'clock and up the other side of the pipe. "Normally, we can use this for 12-inch [diameter pipe] and up," Laimer says of the 43-pound Turbo III that can clean 10- to 20-inch diameter pipes (up to 32 inches with additional stainless steel extension skid). The smaller Turbo II weighs 16.5 pounds and is made to clean 6- to 12-inch-diameter pipes. The larger, 80-pound Turbo IV is designed for cleaning pipes 15 to 36 inches in diameter.

The Turbo chain cutter cleaning nozzle has been especially popular in Canada where they have a lot of old, egg-shaped pipes, Laimer says.

"The Turbo III chain cutter comes with registered utility patented advanced, optimized 3-D hydro mechanics," he says. "The continuously adjustable guide skid can easily be adjusted in 1 1/16-inch increments."

The flexible, open-link chains won't damage pipes. The Turbo III chain cleaning nozzle is 28 1/2 inches long, weighs 43 pounds and has a teardrop-





Reinhart Laimer (right) president of USB-Sewer Equipment Corp., explains the benefits of the Turbo III chain cutter cleaning nozzle to a guest at the Pumper & Cleaner Environmental Expo in Indianapolis.

shaped skid made of tempered stainless steel. The turbine is operated by water from a pressurized hose (minimum 50 gpm at 3/4 inches, maximum 120 gpm at 1 1/4 inches) and needs no lubrication. Other features include low maintenance, easily changeable chain retainers, low operating cost, inexpensive replacement chains and threaded ceramic nozzle inserts – no flow straighteners needed for use in difficult pipes (offsets, drop joints). Since water is channeled separately and has no contact with the cutter's internal bearings, the nozzle can be used with recycled water. The chain cutter also comes with a complete

Laimer says Expo visitors can look for him at next year's Expo, scheduled for Feb. 24-27 at the Indiana Convention Center. This year's show attracted approximately 4,000 septic, sewer and drain companies and more than 500 exhibitors. "We will have some new products next year again and see what happens," Laimer says. 866/408-2814; www.usbsec.com. c

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Passing It On

PREPARING THE NEXT GENERATION TO TAKE OVER THE FAMILY BUSINESS REQUIRES PROPER PLANNING AND GUIDANCE



Erik Gunn is a magazine writer and editor in Racine, Wis., where he operates Great Lakes Editorial Services, consulting for businesses, nonprofits and individuals. Readers may direct inquiries to him by contacting this publication at 800/257-7222 or emailing editor@cleaner.com.

BY ERIK GUNN

f you own a business and have children, sooner or later you, your spouse and your kids will have to face a complex decision: How and when will you pass your enterprise on to the next generation?

That question has two dimensions. One is about money; the other is about management. Both are critically important.

And before you even consider the mechanics of passing on a business, you'll need to ask some other hard questions: Does your child even want to take over the business? And is he or she capable of doing so?

It's never too soon to start thinking about any of these issues.

"The biggest mistake that I've seen owners make is that they look at succession as an event rather than as a process," says Matthew Allen, a professor at Babson College – a small school in Wellesley, Mass., that builds its entire curriculum around entrepreneurship. "They're thinking about that moment in time when they choose to step down and their son or daughter takes over."

The real groundwork should be laid long before, when the child is in high school, or even middle school, Allen says.

Chances are, the youngster's first job will be in the family business's office or workshop. But don't just assume that experience will be enough preparation to take the reins as an adult.

TALK ABOUT IT

Which leads to what Allen calls the second most common mistake he sees: The failure of parents who own the business to talk about it with their kids.

Patrick J. Howley, a partner in the law firm of Shulman Rogers in Potomac, Md., agrees. "A lot of parents don't want to talk to their kids about this – even the kids who are working in the business every day," Howley says. "They get very secretive. It's an uncomfortable conversation."

Sometimes, Allen says, parents are thinking so much about the business on their own that they mistakenly believe their kids know a lot more than they do.

"Parents think that they've been very clear about what the expectations are and what the opportunities are, but the younger generation doesn't have any idea what their parents are thinking," Allen says.

More than once, he's asked business owners, "So have you talked to your children about succession plans?" The answer he typically gets is "All the time" - but when he talks with the adult children himself, he learns that they've heard virtually nothing.

Parents instead need to talk openly about the business and how it works. They also need to listen, so that members of the next generation have the space to express their own feelings about going into the business - or not, if that just isn't where their ambition lies.

More than once the time has come to hand over the business to a son or daughter who's been working there for years, only to get unexpected disappointment in return.

"The parents have been surprised to find the kid has no interest in the business - even though they think they do, because they've been coming to work every day," Howley says.

GO OUT? OR STAY HOME?

A key turning point in any succession is the grown child's first full-time job, probably after high school or college. Even when children are interested in the business, the standard recommendation is to send them out into the world first, into jobs with outside companies that may offer some preparation but also provide a new vantage point.

"They get to go out and prove themselves when they're not in the shadow of their parents," Allen says. "They get to develop their capabilities and their talents without someone looking over their shoulder."

"Parents think that they've been very clear about what the expectations are and what the opportunities are, but the younger generation doesn't have any idea what their parents are thinking."

Matthew Allen

The experience can also build their credibility when they do return to the family business, putting to rest the assumption that they were hired because they were the owner's son or daughter.

Some family business owners take a very systematic approach. They might send one of their adult children off to work in a specific area of business in which they're interested in expanding their own firm in the future, or in a related industry that can offer important insight into their own business issues and practices. And they might also require that the youngster demonstrate concrete success - staying on the job for so many years and earning promotions there along the way.

But sometimes bringing the children up in the business from the start is the best option. Allen says that's especially true if the business is in a distinctive sort of trade with skills that don't easily translate from other lines of work.

In that case, it's almost always best to bring Junior in on the ground floor, treating him or her like any other employee. "You don't want to put the kid in the position where they're essentially the enemy of the other employees



- not trusted, or creating the feeling that they're not having to earn their keep," Howley says.

With any key employees, a formal employment agreement is highly recommended, he adds. "And don't treat your child differently when it comes to that, because the other employees are going to know."

MONEY MATTERS

When it comes to the financial side, Howley notes, many business owners have a lot of mistaken ideas about how to transfer ownership.

"The tax laws are way more favorable than they've been in the past in terms of transitioning wealth," he says. At the same time, issues of timing, of who really controls the company even after ownership has been transferred, and how much is being transferred at a time all make it impossible to take a "one-size-fits-all" approach.

For that reason, it's important to get competent professional advice when you begin to think about succession in a family business. And as good as your regular lawyer might be for your everyday affairs, Howley urges finding someone who is much more versed in the details of business inheritance laws and related topics.

It's worth the expense, he notes, to get an expert appraisal of the business when valuing it for a transfer to the next generation. And because the child's interests are going to be different from those of the parent in any deal, each side of the transaction, even when it's in the family, should have a lawyer.

Even outside the financial realm, in considering the "softer side" of bringing family members into the business, there are professional consultants skilled in the subject, and it's worth your time, energy and investment to seek their guidance.

There are few legacies you can give your heirs that compare with a wellrun and promising family business. By taking the time to prepare, thoroughly communicating with your kids and hiring expert help for every facet of the process, you can help maintain that legacy at its highest potential. C

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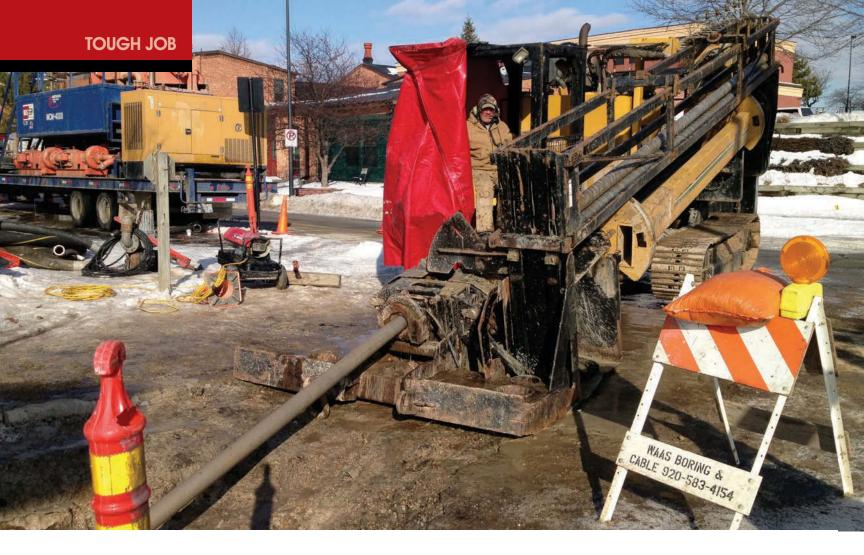
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Boring Through Bedrock

CONTRACTOR UTILIZES HORIZONTAL DIRECTIONAL DRILLING TO EXTEND SEWER SERVICE TO A HISTORIC ISLAND RESIDENCE

BY SCOTTIE DAYTON

he four-year Riverwalk and Wildlife Viewing Pier project undertaken by the City of De Pere, Wis., included renovating the unoccupied locktender house and adding public restrooms. The De Pere Lock and Dam are listed in the State Register and National Register of Historic Places.

The house, built on a narrow dike called Government Island, had no septic system. To the east, the lock's canal separated the building from Voyageur Park on the mainland, and the sanitary sewer 50 feet away in a major thoroughfare. The Lower Fox River flowed past the west side of the island and over the dam.

The only way to connect the lavatories to the sewer was to use horizontal directional drilling. General contractor Feaker & Sons Construction in Green Bay, Wis., subcontracted Waas Boring and Cable in Lomira, Wis., to drill under the river and through its limestone bed.

While wind, snow and temperatures in the teens and low 20s slowed the

tough job

PROJECT: Install 400 feet of 1.25 HDPE tubing through

rock and under a frozen river

CUSTOMER: City of De Pere, Wis.

CONTRACTOR: Feaker & Sons Construction, Green Bay, Wis.

SUBCONTRACTOR: Waas Boring and Cable, Lomira, Wis.

EQUIPMENT: D100x120 Series II Navigator horizontal

directional drill Vermeer 888/837-6337 www.vermeer.com

RESULT: Waste line installed

installation, it went as planned. The house received its first visitors during the project's grand opening celebration in May.

OVER THE RIVER

The city had ferried equipment to the island with a barge and was preparing to pull it out before the river froze. Feaker workers loaded a spool of tracer wire, a spool with 500 feet of 1.25-inch DR9 HDPE tubing, and an excavator on the barge, then journeyed across the canal. After offloading the cargo, they dug a 10- by 6-foot-wide exit pit 8 feet deep at the back of the locktender house. As soon as the machine was back on the mainland, the barge left.

A restaurant, hotel, and other structures along James Street prevented vice president Randy Waas and his four workers from setting up the D100x120 Series II Navigator directional drill (Vermeer) directly across the canal from the

< A tarp enclosing most of the boring machine's operator station shelters Eddy Feught from the wind. The twin tank MCM-4000 reclaimer is behind him on Front Street. (Courtesy of Jim Kneiszel)

house. "The closest we could get and still keep one lane open was an area just before the restaurant where traffic turned in off Front Street," says Waas. "Boring on an angle added considerable distance and another day to the job."

Staging the remaining equipment took up one lane of Front Street. Jammed together were a trailer-mounted, twin tank MCM-4000 reclaimer (American Augers), twin mud mixer and trailer-mounted vacuum excavator (Vermeer) and two flatbed trucks, each with 50 50-pound bags of bentonite.

The team's biggest challenge was locating utilities, communication lines and laterals from the hotel and restaurant. "The owner of the establishment wasn't sure where the clean-outs were, and they were hard to find buried under the snow," says Waas.

Using the vacuum excavator with 1,200-gallon spoils tank and 5.5 gpm/3,500 psi water pump, the crew potholed to expose and verify the laterals

and other lines. When all were located, Feaker used his excavator with a frost hook to break through 36 inches of frozen soil and dig the 5- by 6-feet-wide bore hole 4 feet deep. The preparatory work took three days.

MUD MATTERS

"When drilling horizontally through rock, the pitch can change only 3 to 4 percent," says Waas. "To achieve that, we bored into the rock at 15 percent pitch and were 12 feet deep through the limestone bed before leveling off and boring 350 feet to the exit pit." A stake with an orange flag driven into a snowbank marked the pit and served as a target for drill operator Eddy Feught.

"The diameter seems like overkill for a 1.25-inch waste line, but if we went any smaller, the bits wouldn't withstand the pressure and difficulty of drilling through rock."

Randy Waas

Boring required an 8-inch rock bit with three rotating carbide bits attached to a 20-foot mud motor (progressive cavity positive-displacement pump). "The diameter seems like overkill for a 1.25-inch waste line, but if we went any smaller, the bits wouldn't withstand the pressure and difficulty of drilling through rock," says Waas.

Workers added bentonite and water to the mud mixer, then pumped the drill fluid at 140 to 150 gpm through the drill pipe to rotate the mud motor. As the drill material returned to the bore pit in front of the machine, it was pumped to the reclaimer, which filtered fines from the bore and recycled the fluid.

"The reclaimer has two screens, each with a shaker that distributes debris to the side for disposal," says Waas. "The important thing is to add more bentonite when the mixture thins out, and that depends on the density of the rock." The bore averaged 30 feet per hour and took a day.



ABOVE: Waas staged the directional drill in front of the no parking sign by the hotel and restaurant. (Courtesy of Randy Waas) BELOW: Tim Stieve of Waas Boring and Cable feeds the 1.25-inch HDPE tubing into the exit pit at the back of the locktender house, as two other laborers in the background unroll it from the spool and work out the kinks. (Courtesy of Jim Kneiszel)





LEFT: Tim Stieve of Waas Boring and Cable feeds the 1.25-inch HDPE tubing into the exit pit at the back of the locktender house. The foot path across the river and above the bore is visible to the left. (Courtesy of Jim Kneiszel) BELOW: Eric Feught of Waas Boring and Cable uses a DigiTrak Eclipse locator to track the sonde on the mud motor as it bores beneath the frozen Lower Fox River. He marks its path with pink paint. Only the excavator's red arm gives away the location of the drill rig in the background. (Courtesy of Randy Waas)

WHEN THE WIND BLOWS FREE

The cold and heavy clothing made work arduous and slow. A tarp enclosing most of the boring machine's operator station sheltered Feught from the wind, while a Torpedo heater at his feet blew warm air.



"Unless it's below zero, we can drill," says Waas. "The men dress for the cold and are acclimated to winter. As long as the pumps keep circulating the drill fluid, it won't freeze."

Atlas Bore Planner software (Vermeer) projected a map on a computer monitor

delineating the path Feught would follow. To ensure that the bore maintained pitch across the canal, Eric Feught used a DigiTrak Eclipse locator (Digital Control) to track the sonde on the mud motor. Being an avid ice fisherman, he tested the thickness of his footing with a probe before marking the sonde's location in pink paint. The ice averaged 12 inches thick.

The 12-hour bore used 1,250 pounds of bentonite. After replacing the mud motor with a pulling head, draining fluid from all the equipment and adding antifreeze, the team climbed into the truck with crew cab for the 75-minute ride back to the shop. "Working in the snow didn't bother us," says Waas. "The most difficult part was the long drive back and forth in darkness on heavily traveled sloppy or icy roads."

PULLBACK

Beginning at 7 a.m. the next day, Eddy Feught began pulling back 400 feet of tubing, which took several hours. On the island, Tim Stieve fed the tubing into the exit pit as two others unrolled it from the spool and worked out the kinks. While Feught pulled in the mandatory tracer wire, Feaker ran the tubing into the house and connected it to a grinder pump, installed by a company representative. "Our job was done," says Waas. "We washed the equipment, added antifreeze, loaded everything and moved out."

Feaker excavated 20 feet south from the bore pit, set a manhole at the junction of James Street and Front Street and tied in the tubing. They excavated 30 feet to the sanitary sewer in Front Street and ran a 4-inch gravity lateral to it from the manhole. After backfilling everything with concrete slurry, they laid temporary asphalt for the winter. c



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See ad page 82	Bowman Tool Company & Systems 1515 Braggtown Rd., East Berlin, PA 17316 717-432-1403 • (f) 717-432-0152 bowmantoolco@earthlink.net • www.bowmantool.com			V			~	
See ad page 73	CIPP Services Inc. 330 Raccuglia Dr., Ste. K, La Salle, IL 61301 815-712-8708 • (f) 815-220-1918 sales@cipp-services.com • www.cipp-services.com	V					~	
The Standard of the Industry	CUES 3600 Rio Vista Ave., Orlando, FL 32805 800-327-7791 • 407-849-0190 • (f) 407-425-1569 salesinfo@cuesinc.com • www.cuesinc.com			V	>	V	~	V
See ads on pages 90, 91	Easy Liner 1069 Kings Mill Rd., York, PA 17403 888-639-7717 • (f) 240-465-1199 info@easy-liner.com • www.easy-liner.com	~		V		V		V
See ad page 79	Enz USA, Inc. 1585 Beverly Ct., Unit 115, Aurora, IL 60502 877-369-8721 • 630-692-7880 • (f) 630-692-7885 sales@enzusainc.com • www.enzusainc.com						~	
See ad page 88	Epoxytec 3000 N 29th Ct., Hollywood, FL 33020 877-GO-EPOXY ● 954-961-4656 ● (f) 954-961-2395 drapanos@epoxytec.com ● www.epoxytec.com				V	V		
See ad page 27	Gorlitz Sewer & Drain Inc. 10132 Norwalk Blvd., Santa Fe Springs, CA 90670 877-4GORLITZ ◆ 562-944-3060 ◆ (f) 562-944-7630 sales@gorlitz.com ◆ www.gorlitz.com		V					
HAMMERHEAD TRENCHLESS EQUIPMENT See ad page 31	HammerHead Trenchless Equipment 1300 Capitol Dr., Oconomowoc, WI 53066 800-331-6653 • 262-567-8833 • (f) 262-567-5068 info@hammerheadmole.com www.hammerheadtrenchless.com	~	V	V				
See ad page 79	Infrastructure Repair Systems, Inc. 4301 A 34th St. N, Saint Petersburg, FL 33714 877-327-4216 ● 727-327-4216 ● (f) 727-327-4118 irsi@irsi.net ● www.irsi.net			V	V	V		

				LATERAL	MANUOLE	CEALING/	DEINICTATEMENT	
		RELINING	BURSTING	LATERAL REHABILITATION	MANHOLE REHABILITATION	SEALING/ SPOT REPAIR	REINSTATEMENT CUTTERS	GROUTING
See ad page 75	LMK Technologies 1779 Chessie Ln., Ottawa, IL 61350 815-433-1275 ● (f) 815-433-0107 jkeith@lmktechnologies.com www.lmktechnologies.com	~		V	V	~		
	Logiball Inc. 440 Papin St., Quebec, QC G1P 3T9 Canada 800-246-5988 ● 418-656-9767 ● (f) 418-653-5746 info@logiball.com ● www.logiball.com	~		~		~		V
See ad page 80	Masterliner Inc. 42305 S Airport Rd., Hammond, LA 70403 888-DIG-FREE ● 986-386-3006 ● (f) 985-386-0250 jonathon@masterliner.com ● www.masterliner.com	~		~		~		
MAXLINER See ad page 35	MaxLiner USA 450 College Dr., Martinsville, VA 24112 276-656-1225 ● (f) 276-656-0419 info@maxlinerusa.com ● www.maxlinerusa.com	~		~				
See ad page 86	MTech 7401 First Place, Cleveland, OH 44146 800-362-0240 • 440-646-0996 • 440-646-9953 bcohen@mtechcompany.com • www.mtechcompany.com						~	
See ad page 77	NozzTeq, Inc. 1497 Main St., Unit354, Dunedin, FL 34698 866-620-5915 • 603-413-6583 • (f) 603-413-6744 info@nozzteq.com • www.nozzteq.com						~	
See ad page 38	Nu Flow 7710 Kenamar Ct., San Diego, CA 92121 800-834-9597 • (f) 905-433-9687 info@nuflowtech.com • www.nuflowtech.com	~		V		~	V	
INDUSTRIES See ad page 9	Perma-Liner Industries 13000 Automobile Blvd., Ste. 300, Clearwater, FL 33762 866-336-2568 ● 727-507-9749 ● (f) 727-507-9849 info@perma-liner.com ● www.perma-liner.com	~		V	V	~	V	
See ad page 79	Petersen Products Co. PO Box 340, Fredonia, WI 53021 800-926-1923 • (f) 262-692-2418 sales@petersenproducts.com • www.pipeplug.com	~	~	V	V	~		~
See ad page 40	Picote Solutions 1506 Schaller Ln., Dyer, IN 46311 708-267-6366 tony@picotesolutions.com • www.picotesolutions.com			V				
See ad page 87	Pipe Genie Mfg. 3287 Ardingley Ave., Burnaby, BC V5B 4A5 Canada 877-411-PIPE ● 604-294-5330 ● (f) 604-294-5372 sales@pipegenie.com ● www.pipegenie.com		~					
O FUNING SUPPLY See ad page 47	Pipe Lining Supply, Inc. 2970 E La Palma Ave., Ste. J, Anaheim, CA 92806 714-630-6311 • (f) 714-630-6026 info@pipeliningsupply.com • www.pipeliningsupply.com	~		V		~		
Pipeline Renewal TECHNOLOGIES See ad page 19	Pipeline Renewal Technologies 111 Canfield Ave., Unit B3, Randolph, NJ 07869 877-936-8476 ● 973-252-6700 ● (f) 973-252-1176 mail@pipelinert.com ● www.pipelinert.com			V		~	V	
See ad page 85	Pow-R Mole Sales LLC 1400 Commerce Pkwy., Lancaster, NY 14086 800-344-6653 • 716-683-2486 • (f) 716-683-6372 brian@powrmole.com • www.powrmole.com		V	V				
See ad page 87	Poweram, Inc. 150 N 18th St., Barron, WI 54812 715-537-9050 bill@poweram.com • www.poweram.com		V					

Cleaner PIPELINE REPAIR & REHABILITATION DIRECTORY 2013

		RELINING	BURSTING	LATERAL REHABILITATION	MANHOLE REHABILITATION	SEALING/ SPOT REPAIR	REINSTATEMENT CUTTERS	GROUTING
See ad page 22	PrimeLine Products, Inc. 309 Altamonte Commerce Blvd., Ste. 1518, Altamonta Springs, FL 32714 877-409-7888 ◆ 407-772-8131 ◆ (f) 407-786-8131 andy@prime-line.net ◆ www.primelineproducts.com	V		V	V	~		V
See ad page 77	Proform Pipe Lining Co., Inc. 226 S Elder St., Mishawaka, IN 46544 574-259-0903 ● (f) 574-257-0992 kmishler@choicemail.com www.proformpipelininginc.com	V		V	V	V		
See ad page 82	Quik Lining Systems, Inc. 178 SE Lake Dr., Estelline, SD 57234 714-296-5262 • (f) 866-784-4858 jheisler@quiklining.com • www.quiklining.com	V		V		~		
See ad page 25	R.S. Technical Services, Inc. 1327 Clegg St., Petaluma, CA 94954 800-767-1974 ● 707-778-1974 ● (f) 707-778-1981 sales.info@rstechserv.com ● www.rstechserv.com			V	V			
Rapidview IBAK See ad page 83	RapidView IBAK North America 1828 W Olson Rd., Rochester, IN 46975 800-656-4225 • 574-224-5426 • (f) 574-223-7953 info@rapidview.com • www.rapidview.com						V	
See ad page 14	Ratech Electronics Ltd. 260-7 Spinnaker Way, Concord, ON L4K 4P9 CANADA 800-461-9200 ● 905-661-7072 ● (f) 905-660-1519 sales@ratech-electronics.com www.ratech-electronics.com					V		
Paris trans PET CAPTECTOR PET CAPT	RFI Construction Products 495 Smith St., Farmingdale, NY 11735 631-752-8899 • (f) 631-454-9155 rfipa@rcn.com • www.rficonstructionproducts.com	~			V			~
RODDIE	Roddie Inc. 109 Canyon View, Columbia Falls, MT 59912 888-406-3821 • 406-863-7777 • (f) 888-406-8282 rod@roddieunderground.com www.pipeburstingamerica.com		~	V				
See ad page 30	Source 1 Environmental 422 W Rising St., Davison, MI 48423 810-412-4740 ● (f) 810-412-4743 www.s1eonline.com	~	V	V	V	~		V
See ad page 96	Spartan Tool 1506 W Division St., Mendota, IL 61342 800-435-3866 • 815-539-7411 • (f) 888-876-2371 customerservice@spartantool.com www.spartantool.com		~					
	The Strong Company, Inc. 4505 Emmett Sanders Rd., Pine Bluff, AR 71601 800-982-8009 • 870-535-7617 • 870850-6933 info@strongseal.com • www.strongseal.com				V			
See ad page 13	Trenchless Solutions, Inc. 1237 Hayes Blvd., Bristol, PA 19007 855-LINE-TSI ● 215-948-3090 www.trenchless-inc.com	V		V	V	~		
TRIC	TRIC Tools, Inc. 1350 S Loop Rd., Ste. 104, Alameda, CA 94502 888-883-8742 • 510-629-4167 • (f) 510-217-9493 info@trictools.com • www.trictools.com		V	V				
TRYEK See ad page 42	TRY TEK Machine Works, Inc. 250 N Main St., Jacobus, PA 17311 717-428-1477 ● (f) 717-428-2866 trytek@trytek.com ● www.trytek.com	V		V			~	



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A Cure for Cash Flow

PERMA-LINER EQUIPMENT FUELS RAPID GROWTH IN WASHINGTON CONTRACTOR'S BUSINESS

BY KEN WYSOCKY

hen Nick Patrick formed Trenchless Pipe Repairs LLC in Spanaway, Wash., he relied on a very simple business plan: Invest in new technology. Generate cash flow. Use proceeds to invest in more equipment. Generate more cash. Repeat until fully diversified.

So far, so good for the pipeline-relining company, which now offers three primary services to broad market segments – residential sewer lateral relining and repair, commercial and industrial pipe relining and repair, and municipal sanitary and stormwater sewer relining – using systems made by Perma-Liner Industries LLC.

Patrick estimates he's invested more than \$250,000 in Perma-Liner equipment, including three Perma-Lateral systems for relining 2- to 8-inch residential lateral lines; one sectional point-repair system for rehabbing up to 5 feet of 6- to 24-inch-diameter sewer mainlines; two Perma-Patch systems, one for repairing sections of 4-inchdiameter laterals and another for 6-inch laterals; and a Top Gun F-10 continuous lining system for sanitary and stormwater mainlines (6 to 15 inches in diameter).

Financially, the investments have paid off. Patrick says he made about \$200,000 in gross revenue in 2011, more than doubled that to about \$550,000 in 2012 and expects to generate more than \$1 million in revenue in 2013. Employment increased correspondingly; he now employs eight workers, up from one - himself - two years ago.

"I've been using Perma-Liner technology since 2004 [while working for other companies], so I have the knowledge and experience to get the job done right the first time," Patrick says. "It's very user-friendly technology and the technical support is great. Plus I have

money machines

Trenchless Pipe Repairs LLC, Spanaway, Wash. **EQUIPMENT:** Various pipe relining/repair systems made by

Perma-Liner Industries LLC

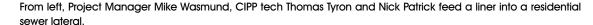
FUNCTION: Relining residential/business laterals, municipal sewer lines

and commercial/industrial pipelines

FEATURES: Maverick hot-water curing technology

COST: About \$250,000







very experienced employees who have collectively relined more than 50,000 linear feet of pipe in their careers."

Patrick purposely started relining residential laterals. He built up business by developing relationships with plumbers who hired him as a relining subcontractor. Why start with residential customers? Three simple words: payment up front.

"Cash flow is extremely important when you're starting out small with nothing," he points out. "It's always a problem if you have a huge capital investment, which I did. Getting paid up front allowed me to pay for things as I went, and expand the business. If I get money up front, I can still make my payments for the

equipment, but also throw additional money into marketing."

After he established the company's position in residential-lateral relining, Patrick worked his way into the commercial and industrial markets, where it typically takes 15 to 30 days to get paid. On the other hand, the profit margins are higher, he notes.

"With hot-water curing, you spend less time with epoxy and the curing process is faster and requires less labor. Ambient curing takes three to five hours, and during that time, your crew sits and waits. Hot-water curing occurs in an hour."

Nick Patrick

Later, Patrick started bidding on lucrative municipal projects, which gave him strong, diversified positions in three market sectors. Municipal jobs take a lot longer to complete - sometimes up to three months for a 3,000-linearfoot relining project, for example – but the residential jobs help the company sustain decent cash flow.

Patrick credits Perma-Liner's Maverick hot-water curing system for greatly improving the productivity and profit margins for pipe relining. He used to use an ambient-cure system, but found the hot-water system faster and less labor intensive.

"With hot-water curing, you spend less time with epoxy and the curing process is faster and requires less labor," he says. "Ambient curing takes three to five hours, and during that time, your crew sits and waits. Hot-water curing occurs in an hour. And a lot of times, [with ambient curing] you need to have an extra man to wet out the liner so it doesn't cook out ... you're on the clock once you mix the epoxies together.

"So the hot-water process is faster and more efficient," he continues. "With ambient curing, we could do one liner in seven hours. With hot-water curing, you're done in about two hours, so you can do multiple jobs in a day, with less labor. Over the course of a year, that adds up. With water curing, I control the epoxies, instead of the epoxies controlling me. And less labor requirements give me a competitive edge in bidding."

Patrick notes that other machines contribute to the company's success, too: a trailer-mounted water jetter made by Jetters Northwest (a division of Seattle Pump & Equipment) that can clean 2- to 6-inch-diameter lines (12 gpm at 3,000 psi); two Gen-Eye SD pipeline-inspection camera systems, made by General Pipe Cleaners (a division of General Wire Spring Co.); a NaviTrack pipeline locator made by RIDGID; and a lateral-reinstatement cutter made by IMS Robotics GmbH. c

SHOW US THE MONEY (MACHINE)

Money Machines, a feature in Cleaner, reports on innovative work vehicles that help contractors operate more efficiently, satisfy customers and earn more profit. We'd like to know about your Money Machine be it a service van, camera truck, jetting rig, vacuum unit or any vehicle that really helps drive your business. To nominate your vehicle for a feature in this column, send an email to editor@cleaner.com. Tell us briefly but specifically what features make it a great producer. And send a picture because appearance counts. We look forward to seeing your Money Machine.



Real and Present Danger

CROSS BORES PRESENT SERIOUS HAZARDS TO PEOPLE AND PROPERTY IF NOT DETECTED BEFORE CLEANING OPERATIONS

BY DOUG DAY

ou're cleaning a clogged line from a home to the septic system in the backyard. As you are cutting through a tree root, you may be cutting into something much more dangerous. A normal, routine job can quickly turn into disaster if you happen to encounter a cross bore a natural gas line or other underground utility accidentally installed through a

It is impossible to know if you have a cross bore conflict without some footwork and research. If other underground utilities are anywhere near the sewer line, the potential is there due to the inaccuracies of horizontal directional installation methods and the inherent problems of accurately locating underground utilities.

Minnesota was the first state to enact guidelines for gas pipeline installers in May 2010. When issuing the guidance, the Minnesota Office of Pipeline Safety reported 155 known instances in the state in which gas lines were accidentally installed through privately owned sewer laterals. From 2000 to 2010, there were six incidents of gas lines being punctured by sewer cleaning contractors, three of which resulted in explosions, significant injuries and property damage.

There are many other documented cases across the nation. It has been a known hazard since at least 1976 when the National Transportation Safety Board cited a cross bore as the cause of a house explosion in Kenosha, Wis. Two people were killed, four hurt and two nearby homes were damaged. According to the NTSB report, "The destroyed house was not served by natural gas. However, natural gas, which was escaping at 58 psig pressure from a punctured 2-inch plastic main located 39 feet away, had entered the house through a 6-inch sewer lateral. The gas was ignited by an unknown source."

While regulatory attention is increasing, the Cross Bore Safety Association (www.crossboresafety.org) says, "State regulations and 'One Call' type of services alone have not eliminated the problems of damage to underground utilities nor the risk of injury. It is an important step. CBSA believes that additional efforts are needed than are currently the standard of practice."

From 2000 to 2010, there were six incidents of gas lines being punctured by sewer cleaning contractors, three of which resulted in explosions, significant injuries and property damage.

Though states and other groups are taking actions to reduce the chance of cross bore installation incidents, there is still the risk of encountering an existing cross bore. The Virginia State Corporation Commission has issued safety guidelines for those working on sewer lines to go along with proper locating of underground utilities:

- Inquire with the owner, occupant or building maintenance people to determine:
 - The location of sewer facilities such as clean-outs
 - If there has been any recent excavation to install utility lines
- If the markings for existing underground utility lines cross the path of the sewer line, it may be a cross bore that is causing the blockage.
- Use a camera to identify the location of the blockage. If the evidence of recent excavation or the marking for a utility line is the same distance from the building as the blockage, again, there may well be a cross bore causing the blockage.
- If you reasonably suspect or determine the blockage is caused by a cross
 - Do not attempt to clear the blockage with a mechanical device.
 - Get help from the utility operator that may be involved.
 - Hand dig in the area where the blockage and/or the cross bore may

Of course, if a cross bore is discovered, work should be stopped and the local gas or electric utility notified. It may take some extra time, but that's better than an explosion or electrocution. c



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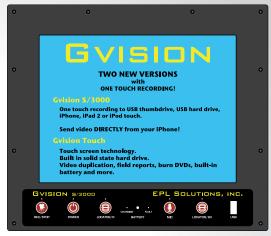


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Cured-in-place pipe lining (CIPP) is a proven, long-lasting trenchless repair method that continues to grow in popularity for renewing aging and deteriorated pipes. Here are several systems that employ the technology, along with excavation equipment to expose entry points. Robotic cutters used for lateral reinstatements are also included.











RELINING AND REHABILITATION SYSTEMS

1. PERMANENT LATERAL SEALING SYSTEM

Top Seal from AMerik Engineering is for permanent lateral sealing of the gap between the liner and the existing pipe. The system places a pre-impregnated fiberglass insert in the lateral junction, and UV light cures the product in seven minutes. The bond with the existing surfaces is achieved with epoxy. The system also contains sectional liner applicators for seven-minute curing of 2-feet-long repairs. All fiberglass materials come pre-impregnated with a UV-reactive polyester resin that can be stored for five months at room temperature. 770/924-2899; www.amerikengineering.com.

2. FAST-CURING GROUT GEL

AV-100 from **Avanti International** is an ultra-low viscosity chemically reactive grout gel available as either granules or liquid. Having the same viscosity as water, it can permeate anywhere water can travel and cures within a controllable time frame anywhere from five seconds to 10 hours. Once it cures, it creates an effective, long-lasting water barrier while providing superb soil stabilization. It stops water infiltration in manholes, sanitary and storm sewer mainlines, joints, laterals, tunnels, mines and various other geotechnical applications and underground structures by stabilizing external substrate. **800/877-2570**; www.avantigrout.com.

3. COMPUTERIZED GROUTING SYSTEM

The Easy Grout computerized grouting system from CUES features a graphical user interface that leads the technician intuitively through the grouting process. The software includes help files, tool tip descriptions and recommended settings to assist operators throughout the process. Since the system has been designed to consolidate all the valves, electrical controls, etc., into a single instrumentation cabinet, it can be mounted in any location, saving office space. 800/327-7791; www.cuesinc.com.

4. STANDARD COMBO SAVER

Pit Shot Bullseye liner from **Easy Liner** is a coated felt liner with reinforcement in only one direction. The reinforcement works along the length of the tube, resulting in a liner tube that is stiff in the length direction but flexible in the radial direction, allowing effortless inversion around bends at pressures as low as 5 psi. The liners come in a value pack kit that can save installers up to 33 percent of the cost of buying components individually. It includes 164 feet of liner, cal tube, premeasured resin and fully illustrated instructions. 888/639-7717; www.easy-liner.com.

5. COMPOSITE INVERSION DRUMS

HydraLiner composite inversion drums from **HammerHead Trenchless Equipment** are lightweight, high-capacity inversion drums that allow technicians to use steam, hot water or ambient to cure with one drum. They withstand the higher temperatures needed for steam curing. They are easily













maintained, corrosion free and are seamless, eliminating a common failure point in other drums. Three drum sizes are available – the Mini-Hydra, Hydra and the Super-Hydra. 800/331-6653; www.hammerheadtrenchless.com.

6. TRENCHLESS PIPE REPAIR SYSTEM

The HydraTite Seal from HydraTech Engineered Products is a do-ityourself point repair system for leaking joints. The system, which consists of a rubber seal that is held in place by stainless steel retaining bands, is custom designed and manufactured for each individual project. The seals can be interlocked to span long lengths of pipe, or can include a backing band or extra bands to accommodate the remediation requirements of pressure piping with internal pressures of up to 300 psi and infiltration of up to 70 feet of head (30 psi). It is ideal for remediation of storm drains, sewer systems, gas pipelines, potable water irrigation and power generation lines. 513/827-9169; www.hydratechllc.com.

7. STRUCTURAL LINING SYSTEM

EcoCast from Inland Pipe Rehabilitation is an environmentally friendly, precision-applied, centrifugally cast structural lining system that combines the most advanced application equipment with a custom formulated geopolymer for consistent application and long-term performance. It will successfully restore concrete, brick or corrugated metal storm and sewer pipes, and noncircular infrastructure. It is a particularly cost-effective solution for large diameter pipe sections starting at 36 inches. Applications include storm drainage culvert renewal, manholes, wet wells, junction boxes, DOT and airport projects. 281/362-1131; www.teamipr.com.

8. SLEEVE INSTALLERS

Sleeve installers from Logiball cover 3- to 36-inch pipes in lengths as long as 25 feet if required. Multi-size and flow-through, the bladders have proven over time and abuse to be very resistant and reliable. In the event of a damaged sleeve, all sleeve installers can be factory re-sleeved at a fraction of the replacement cost. 800/246-5988; www.logiball.com.

9. TWO-COMPONENT COATING SYSTEM

The two-component coating system from Madewell Products Corp.

consists of a high-build restoration mortar and a 100 percent solids epoxy corrosion barrier coating that is ideal in repairing and protecting concrete and brick sewer structures. First, the mortar is shot onto a damp substrate, using the water on the surface to achieve a strong bond. Then an epoxy topcoat is applied while the mortar is still soft, and the two materials cure together. The final product results in a strong and highly corrosion-resistant monolithic lining that provides a continuous surface. The mortar and topcoat are tightly bonded to the substrate and each other. This system saves time and labor costs because it eliminates the need to dry the structure prior to mortar application. The need for a second mobilization to apply the epoxy after the mortar has cured is also eliminated because the two materials cure simultaneously. 800/741-8199; www.madewell.net.

10. LINING INVERSION TOOL

The MaxLinerGun from MaxLiner USA is an inversion tool ideal for hard-to-reach places. The 33-pound unit is lightweight and easy to use when inverting linings in mainlines using both an open-end or closed-end method. Applications include laterals, verticals, roof drains, industrial drains and pipes of all kinds from 2 to 10 inches in diameter, with lengths up to 200 feet, bends through 90 degrees, and insertions of spot repairs of joints and holes or entire pipe sections. The system has received code-compliancy from the International Code Council (ICC-ES) for both lateral and vertical repair. 276/656-1225: www.maxlinerusa.com.

11. HOT-TAP PLUG SYSTEM

Multi-Flex line stop plugging systems from Petersen Products are designed for insertion through a small hot tap into a larger pressurized pipeline to stop flows and make repairs without having to drain the pipe. Made of ballistic nylon, polyurethane and rubber, plug composition can vary depending on chemical resistance and temperature requirements. The system includes a tapping saddle and valve, launch cylinder, Multi-Flex pipe plug with Z-swivel on the inflation end of the plug, and directional shoe on the leadin, inflation controller with gauge, inflation hose, inflation ram assembly with centering guide, inflation ram packing seal and T-handle. Plugs can be used on pipelines from 2 inches to 21 feet in diameter. They can withstand temperatures up to 400 degrees F. 800/926-1926; www.petersenproducts.com.















12. CALIBRATION ROLLER

Pipe Lining Supply is an exclusive distributor of a calibration roller that ensures that the liner installed is the correct thickness throughout the entire line. At the same time, an installer will not waste resin by making the liner too thick. The roller is equipped with a built-in calibration guide. Using the roller along with a vacuum pump will make impregnation quick, professional and easy. **714/630-6311**; **www.pipeliningsupply.com**.

13. CURE-TEMPERATURE MONITORING SYSTEM

The VeriCure system from Pipeline Renewal Technologies monitors cure temperature continuously along the full length of a CIPP liner during installation, helping ensure storm and sewer lines are rehabilitated to specification. Designed to distinguish even small thermal variances, the system measures average temperature in successive 1.5-foot zones. Inexpensive fiber-optic probes make it affordable to prevent costly lifts, delamination, over-tensioning and environmental contamination. It indicates exactly when the liner cure goes exothermic, and when cure and cooldown are complete. This means no wasting fuel and crew time overcooking the liner, and no risk of failure due to undercooked midpoints. 866/936-8476; www.pipelinert.com.

14. LATERAL CONNECTION SEALS

The Interfit CIP lateral sealing system from Quadex/InterfitUSA rehabilitates and seals lateral connections to lined sewer mains, eliminating infiltration and root intrusion. Depending on lateral defects/bends, the system extends from 1 to 20 inches into the lateral, sealing three critical problem areas – the annular space between a main liner and the host pipe, the lateral connection and the first joint. It includes a "full main wrap" (360 degrees) one-piece CIP fiberglass sock in the main that helps anchor the lateral portion of the sock. By using 25 to 30 psi inflation pressure, the nonshrinking resin attains superior migration into pipe defects, which yields superior mechanical adhesion and long-term performance. 870/688-7100; www.interfitusa.com.

15. SEWER LATERAL LINING SYSTEM

Quik Lining Systems is an advanced CIPP sewer lateral lining system

that simplifies the process, giving the operator a lower cost per foot of lined pipe. It is lightweight and can be operated by a single operator completing a job in about four hours, and can give a crew the ability to install up to eight or more lines per day. The unit can be operated from rooftops, basements or the street. The system's design eliminates multiple handlings of materials and can line pipe at over 100 linear feet per minute. 714/296-5262; www. quiklining.com.

16. LINER END SLEEVE

The QuickLock Liner End Sleeve from Rausch Electronics instantly and permanently seals the liner to the host pipe, preventing inflow along the liner running into the manhole. It protects the liner-end section from potential physical damage caused by a root cutter or jetting nozzle. The sleeve body is made of 316L stainless steel, covered by an EPDM rubber gasket designed to accommodate all common liner wall thicknesses that maintains the nominal width established by the liner. It works strictly on mechanical compression, with no resin or grout involved. The sleeve is expanded by a specially designed packer and locks into place using a one-way ratchet locking gear mechanism. 717/709-1005; www.repipetech.com.

17. POLYMER COATING

SewerGard Glaze No. 210G from Sauereisen is a versatile polymer coating that can be applied via plural-component spray equipment to facilitate rapid installation. It can be sprayed at 40 mils for added durability when used as a stand-alone lining. By combining the formula's greater thickness with the added convenience of plural component spraying, it is ideal for use in clarifiers, tanks, wet-wells, secondary containment and structural steel at wastewater treatment plants. It also works well on its own, as rolling, spincasting or spraying the material facilitates a rapid rate of application at 20 mils for the preventive maintenance of corrosion. 412/963-0303; www.sauereisen.com.

18. UTILITY SEALANT

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3,200 psi. It is designed to prevent inflow/infiltration and to provide corrosion protection at the grade-adjustment ring section or joint section. It provides a seal that will pass a vacuum test according to ASTM standards. The internal seal is manually applied using a paint brush, and the kit is designed to cover 12 vertical inches on a 27-inch-diameter manhole. 800/478-2054; www. ssisealingsystems.com.

19. POINT REPAIR SYSTEM

The **PipePatch** cured-in-place point repair system from **Source 1 Environmental** consists of components tested and listed to NSF 14 and NSF SE 10990. The 100 percent fiberglass liner material consists of a knitted biaxial and chopped strand composite, saturated with a proprietary silicate resin which, when mixed, is inert and nontoxic. After mixing, resin is yellow in color and serves as a visual aid to the installer to ensure total and complete saturation. It meets all ICC-ES PMG listing requirements, and complies with the 2012 and 2009 International Plumbing Code (IPC), 2012 and 2009 International Residential Code (IRC), and 2012 and 2009 Uniform Plumbing Code. It is in compliance with NSF 14, Plastic Piping System Components and Related Materials, and NSF SE 10990, Special Engineered Specification for Rehabilitation by Point Repair of Existing Pipe. **810/444-5364**; **www. sleonline.com.**

20. CONTROLLED WATER PRESSURE INVERSION UNIT

The Controlled Water Pressure (CWP) Inversion Unit from TRY TEK Machine Works installs 6- to 18-inch CIPP liners manhole to manhole with water pressure. It features low clearance, and can operate in places inaccessible to high scaffolds or lift trucks. Incompressible water reacts instantly when the unit is "jogged," resulting in easier navigation of bends and irregularities. Hot-water curing eliminates working with hazardous high-temperature steam. The liner coatings are safe from melting or blistering due to high-temperature steam, and remain constantly inflated from inversion through curing, eliminating host-pipe damage caused by multiple inflations. With water's superior heat retention, groundwater infiltration into host pipe is less likely to prematurely cool the liner causing incomplete curing. 717/428-1477; www.trytek.com.

EXCAVATING EQUIPMENT

21. VACUUM EXCAVATION SYSTEM

The 49 hp FX50 vacuum excavation system from Ditch Witch can be customized to a customer's specifications, with choices of trailer configurations and options such as hydraulic booms, water heaters and hydraulic valve exercisers. It comes with a choice of four spoils tank sizes (from 300- to 1,200-gallon capacity) and four water tank sizes (80 to 500 gallons) to meet the requirements of most clean-out job sizes. It can be configured with an optional reverse flow feature that enables the operator to off-load fluid spoils from the vacuum tanks quickly and easily. The hydraulic tank door opens fully to maximize the efficiency of spoils removal, and also locks hydraulically. It can be used to clean out sewers and valve boxes, horizontal directional drilling support, removing road construction debris, and for soft excavation tasks such as posthole digging and potholing, or exposing utilities. 800/654-6481; www.ditchwitch.com.

22. MINI-EXCAVATOR

TMX mini-excavators from Innovative Equipment feature a quick-hitch system that can be hooked behind a standard 1/2-ton pickup, van or light-duty tow vehicle. They eliminate tracks by utilizing zero-turn technology for access to tight locations and lawns. Weighing only 2,941 pounds, they feature an 8-foot digging depth and 6,600-pound digging force. The unit features a 7-foot 2-inch loading height with a swing radius of 140 degrees, allowing access next to walls and other obstructions. An auxiliary hydraulic tool circuit has the ability to power hydraulic tools including jackhammers, pumps and saws. 888/359-3002; www.iequipt.com.

23. JETTING NOZZLE

The F-4 MONRO-JET nozzle from NozzTeq combines the power of a solid stream pencil jet with the large coverage of a fan jet. Its lightweight and sturdy design makes it ideal for hydroexcavation. Its circular water jet generates tremendous power at modest gpm rates, allowing technicians to move faster whether they are hydroexcavating, surface cleaning or cleaning sewer lines. It is ideal for other types of surface cleaning such as concrete,





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steel, castings and large surface areas including line removal from runways. It can be modified for internal pipe cleaning of sewers and pipes of all types. Its orbital design increases performance at lower gpm rate and pressures as high as 36,250 psi. **866/620-5915**; www.nozzteq.com.

24. HYDROEXCAVATING TOOL

The Soil Surgeon hydroexcavating tool from The Soil Surgeon Inc. is designed to fit any sewer combination truck equipped with a telescopic 6- or 8-inch boom. The tool has a 1-inch water connection. The operator controls water pressure and power with truck controls. Features include 6-foot Tuff Tube with handles fabricated to the tube to guide the unit down for potholing or side to side for trenching. Six jets boring inward cut the soil, while six jets boring outward bring the tube down. Bumpers on the bottom protect the jets and lines the tool might contact. 949/363-1401; www.soilsurgeoninc.com.

25. INDUSTRIAL VACUUM LOADER

The Supersucker HDX industrial vacuum loader from Super Products is equipped with a water system that includes a standard 600-gallon-capacity water tank and a hydraulically driven pump that delivers flow up to 14 gpm and pressure up to 3,000 psi. Its 8-foot articulating boom offers 330-degree rotation and 27-inch reach, and has the ability to pivot 45 degrees upward and 25 degrees downward. An 8-inch positive-displacement vacuum system provides airflow to 5,800 cfm and 28 inches of vacuum. Single-mode filtration enables the loading of both wet and dry material with no changeover required. The durable collector body is constructed of 1/4-inch steel and offers a payload capacity of 18 cubic yards. A heavy-duty, telescoping doubleacting cylinder provides a 51-degree dump angle. An optional Acculevel load sensor system is available. 800/837-9711; www.superproductsllc.com.

26. HYDROVAC UNIT

The F4 hydrovac unit from Tornado Hydrovacs carries 13 cubic yards of mud and more than 2,000 gallons of freshwater. Components include a water tank from which you excavate, a mud tank in which the excavated spoils are held, a water pump, a boiler to heat the water and a positive displacement vacuum blower to pull the spoils to the tank via a boom. 877/340-8141; www.tornadotrucks.com.

27. DUMPING HYDROEXCAVATOR

The Vacall AllExcavate hydroexcavation truck features a high-dump option that allows the operator to use a wireless remote control to raise the debris tank as much as 76 inches above ground level, and then shift the tank horizontally 21 inches beyond the rear bumper. That enables it to dump debris into roll-off containers, typically with an edge that's 60 inches above ground level. It uses just one engine for mobility and to generate water flow at 10 to 25 gpm and pressures up to 3,000 psi. Used in combination with strong vacuum forces, it can loosen and then remove dirt, rocks and other material from around utility lines and foundations. Standard and optional debris bodies and water tanks are available. The AllSmartFlow CAN bus intelligent control system is standard, monitoring water usage and minimizing downtime for water tank refills. 800/382-8302; www.vacallindustries.com.

REINSTATEMENT CUTTERS

28. QUICK-CHANGE REINSTATEMENT CUTTER

The Dominator 430 from Bowman Tool Company & Systems is a reinstatement cutter designed to operate in 6- to 30-inch relined pipe. It features a streamlined design with no external air tube, and its head assembly incorporates a pinionless, quick-change design and an adjustable gib to reduce adjustment time and maintain accuracy. Lateral reinstatement is achieved with the 0.8 hp or 1.2 hp cross-flow air motor. The 2.5 hp geared air motor can decrease reinstatement time by approximately 80 percent. It can be disassembled and reassembled in approximately 30 minutes. All the electric motors are isolated at the end of the cutter, in a watertight chamber eliminating the problem of water-damaged motors and allowing for easy and quick access. It is manufactured from temper-hardened stainless steel and bronze enabling it to cut the toughest liners on the market, including UV cured lines. 717/432-1403; www.bowmantool.com.

29. SMART CUTTING SYSTEM

The Picote Smart Cutter System, distributed in North America by LMK Technologies, allows the removal of tuberculation and tree roots, and the reestablishing of branch lines in building drains and sewer pipes to be done





easily through a single pipe access such as a clean-out. Service lateral pipes can also be reinstated post mainline lining by inserting the system through a clean-out. It is suitable for use in pipe diameters between 1 1/4 and 8 inches. The Twister model is for plastic pipes, and is also available in a comprehensive range of pipe sizes. 815/433-1275; www.lmktechnologies.com.

30. FLEXIBLE CUTTER

The Dancutter DC FLEX flexible cutter, distributed in North America by **Perma-Liner**, can be used in sewer pipes from 3 to 5 inches in diameter. The cutter is used to reopen the lateral after lining. It is also used to mill away concrete, tree roots, rubber rings, metal and all types of deposits before lining. It works with a cutting head driven by an air motor, which is connected on the lifting arm, so the grinding motor can be raised up and down. The lifting arm is mounted on the rotating unit, operated by an electric motor and can rotate continuously. The air motor and lifting arm are both supplied with air through a supply tube mounted on the rear end of the cutter. All functions are controlled from the control panel on two joysticks. It can negotiate multiple bends in a relined 4-inch pipe. 866/336-2568; www.perma-liner.com.

SAFETY EQUIPMENT

31. AXIAL BLOWER WITH CANISTER

The 12-inch Plastic Axial Blower with Canister from Allegro, distributed by Milwaukee Rubber Products, features a polyethylene housing and canister assembly designed to be both lightweight and quiet. It is made of corrosion-, UV- and chemical-resistant polyethylene in "safety orange." The quick-connect clipping system allows workers to attach the canister, tool free, to the input side for powerful extraction or output side for ventilation. Added features include molded carry handle and 15 or 25 feet of PVC-coated vinyl and polyester ducting, which stores easily within the storage canister. 800/325-3730; www.milwaukeerubber.com. c





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CIPP LINING METHODS AND PROJECTS BY CRAIG MANDIL

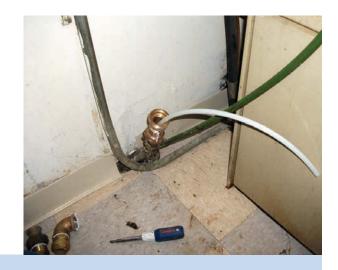
PIPE LINING SYSTEM SAVES APARTMENT COMPLEX TENANTS FROM RELOCATION

PROBLEM

Reddington Pines Apartments, a multiple-unit apartment complex in Newark, Ohio, had a potable underground water service leak. The water service pipe was 1-inch copper, and ran approximately 40 feet from the curb stop to inside the building. The pipe was partially located under the building and concrete floor, which would take a considerable amount of time to excavate and replace, meaning the tenants would have to be temporarily relocated. Facility owners sought an alternative.

SOLUTION

An installer inserted a **Neofit** liner from **Flow-Liner Systems** into the water pipe from the curb stop to the building. The 1-inch copper pipe was completely lined in less than one day. The building and concrete floor was not disturbed. Tenants did not have to be moved and were without water for only a short period of time.



RESUIT

The apartment complex management was very pleased with the result and relieved they didn't have to disturb their tenants. 800/348-0020; www. flow-liner.com.

MILK PRODUCTS PLANT SEEKS SOLUTION TO CRACKS IN CLAY PIPE

PROBLEM

A milk products transformation plant in Beauceville, Quebec, Canada was consistently dealing with offset joints, longitudinal cracks and structural wear due to acids and caustics flowing in 130 feet of 10-inch clay pipe. The plant managers were looking for a solution.

SOLUTION

The maintenance department from the plant contacted DrainExpert in Montreal, Quebec, to reline the pipes with Formapox 301 industrial liner from Formadrain. The fiberglass/epoxy composite material rehabilitates the structure and watertightness of existing pipe, and the chemically resistant resin will prevent any wear from chemicals such as caustics and acids used in cleaning their equipment, all without any excavation or disruption in a food plant where cleanliness and aseptic operations are more than critical.



RESULT

The repair was done in a single day. The plant was back on track the next day after being on a scheduled shutdown. 888/337-6764; www.formadrain.com.

CHALLENGING LINES SEALED WITHOUT DIGGING OR TRAFFIC DISRUPTION

PROBLEM

After lining a series of laterals for the City of Westport, Ind., Dennis Denney of Scott Engineering found two of those liners came up short, the first by 4 feet at the end of the 100-foot liner. It was 12 feet deep, with a 90-degree bend. The second, short by 6 feet, ran under a road, had three 45-degree bends and was 80 feet to the repair site. Digging up the road or down 12 feet would be very difficult and not an option for the city.

(continued)



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SOLUTION

Denney determined a trenchless point repair, or short liner, was needed to make a continuous liner to connect with the mainline system. He chose the trenchless Lateral Point Repair System from Infrastructure Repair Systems. The custom fiberglass and felt liner was wrapped and secured on a push-pull carrier, then pushed through each of the bends in the lines of 80 and 100 feet to the repair sites. The carrier was inflated, pushing the epoxy-soaked liners in place. The epoxy cured and the gaps were covered, completely sealing the lines.

RESULT

By utilizing the system, Scott Engineering made each repair in one day without digging and disrupting traffic and the environment for days. They estimated the savings at over \$21,000. 877/327-4216; www.irsi.net.

EPOXY COATING SOLVES CONDOMINIUM COMPLEX'S SLAB LEAK ISSUES

PROBLEM

A luxurious condominium complex in Solana Beach, Calif., was dealing with an influx of slab leaks, which concerned the condominium's insurance company. The facility's homeowners' association began researching relining options.

SOLUTION

The association found that epoxy coating from Nu Flow Technologies was half the cost of a traditional re-pipe, and could be completed in about half the time. After the pipes were cleaned, shots of epoxy were moved through the pipe system using clean, compressed air. Technicians applied the coating to all 190 units' potable systems. The epoxy cures and forms a protective coating that prevents slab and pinhole leaks, corrosion, rust, lead leaching and other common potable system failures.



RESULT

The homeowners' association reported that there have been no slab leak issues since the project's completion. 800/834-9597; www.nuflowtech.com.

INVERSION SYSTEM ENDS INFLOW AND INFILTRATION ISSUES

PROBLEM

Due to I&I issues, the Dallas Area Municipal Authority (DAMA) in Shavertown, Penn., recently decided to reline its main sewers. The majority of pipes are 8 inches in diameter, and up to 400 feet in length.

SOLUTION

The authority engaged Trelleborg Pipe Seals & Exeter Supply as their sole equipment and material supplier. The system comprised of an epros Type 3 inversion system along with impregnation, vacuum system and M300 steam unit. The inversion drum is designed to hold up to 15-inch liners, and has a capacity for more than 400 feet of 8-inch liner. The corresponding steam unit is specifically designed for sewer rehabilitation. Steam generation is fully automated to reduce fuel and water consumption. Steam is "dry" with a moisture content of 2 percent maximum, ensuring minimal water condensate during the curing process. An Epropox HC120 epoxy resin system was installed in conjunction with Drainflex Polypropylene coated liner.



RESULT

The final product has zero shrinkage, ensuring there is no annular gap between the host pipe and liner, preventing ground water from reentering the system at manholes and reopened lateral connections. Trelleborg technical staff provided full training and certification at DAMA's facility and during live on-site installations. 800/626-2180; www.trelleborg.com/epros.









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Apparel protects against high-pressure injury

BY ED WODALSKI

Pro-Operator personal protective clothing from TST-Sweden, distributed by US Jetting, is designed to protect waterjet operators from the hazards of high-pressure equipment.

Made from lightweight and flexible Dyneema, the clothing line includes gloves, aprons, pants, hooded jackets and one-piece overall with detachable hood. All apparel meets OSHA safety standards.

"You also can get a screen to protect operators who might be in an area where someone is working with a high-pressure jet," says Nick Woodhead, president and founder of US Jetting. "In the hot summer, wearing a jacket can be uncomfortable, but you can put an apron on, which will give you a certain level of protection. In the wintertime, protective gear is ideal because it's waterproof and warm."

Woodhead says he began his search for the protective gear after an operator accidently ran his hand over a pinhole leak in a high-pressure hose operating at 3,000 psi, causing severe injury. The operator was wearing a pair of latex gloves at the time.

"I called everyone in the industry and said I needed a pair of gloves that could withstand the waterjetting pressures. TST was the first to respond and developed something for us," he says. "We've got to get people to realize that protective equipment is out there, and if you use it, it will save lives."

The nitrile-dipped gloves are designed to protect hands when using a 3,000-psi straight jet or 7,500-psi rotary head. They are CE certified according to EN 388:2004 with level 5 protection against cuts and level 4 rated against abrasion, tear and puncture.

The gloves have a rough, sand texture for added grip and separate nylon liner for comfort. Available in sizes 8 and 11, they are machine washable and have a three-year shelf life.

The apron has built-in three-layer protection to 7,500 psi. Available in one size, it weighs 1.5 pounds and has an adjustable neckband and waistband.



The two-piece jacket with hood and pants provides full body protection to 7,500 psi. The jacket has a detachable hood with room for ear protection, waterproof zippers with overlapping flap, adjustable cuffs and comfort lining. The pants have an adjustable elastic-back waist, detachable suspenders, reinforced



knees, double belt loops and zippers at the leg bottoms.

The one-piece overall with detachable hood also offers protection to 7,500 psi. Lined for comfort, it features open ventilation in the armpits, adjustable cuffs and hood.

"Eventually safety clothing will become mandated by the companies that are having contractors come in because they don't want the liability of someone getting injured on site," Woodhead says. "Also, OSHA states that if there is protective gear, you have to make it available to your employees. It's just a matter of time before everyone will be using it." 800/538-8464; www.usjetting.com.



DITCH WITCH HORIZONTAL DIRECTIONAL DRILL

The JT25 horizontal directional drill from Ditch Witch delivers 27,000 pounds of thrust and pullback and 4,000 ft-lbs of torque. Designed for installing utility pipe and cables up to 4

inches in diameter at lengths up to 500 feet, the drill has a rotational drive system and is powered by a 130-hp, Tier 4i Cummins diesel engine. 800/654-6481; www.ditchwitch.com.

NLB 24,000 PSI MULTI-GUN VALVE

The MGV24-1200 multi-gun valve from NLB Corp. allows two or more waterjet lances (or other accessories) to be operated from the same 24,000 psi pump unit. The valve can be used with any dump-style lance and can be rebuilt in the field in



approximately five minutes. Weighing 33 pounds, the valve operates at flows of 12 to 24 gpm per operator. 800/441-5059; www.nlbcorp.com.

SUBARU CENTRIFUGAL PUMPS

The PKX line of centrifugal pumps from Subaru Industrial Power Products features an overhead cam engine with heavy-duty strainer to protect the pump from large solids. Self-priming is available in 2-, 3- and 4-inch models. The 2-inch PKX201 is powered by the EX13 4.5 hp engine



and delivers 158 gpm. The 3-inch PKX301 is powered by the 6 hp EX17 engine and delivers 256 gpm. The 4-inch PKX401 is powered by the 9 hp EX27 engine and delivers 356 gpm. The pumps have an abrasion-resistant, cast-iron, three-blade impeller and hardened, cast-iron volute. 800/277-6246; www.robinamerica.com.

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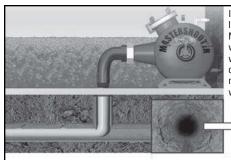
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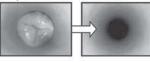
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AIR-SPADE **AIR-EXCAVATION TOOL**

The Utility air-excavation tool from Air-Spade, a division of Guardair Corp., is designed



for working around underground electric and gas lines. The tool has a highvoltage insulated (300 kV) 4-foot barrel and non-sparking nozzle (105 and 150 cfm). It is available with multiple extension lengths, and operates off a 185 cfm tow-behind compressor. 800/482-7324; www.guardaircorp.com.

RIDGID RP 340 PRESS TOOL

The RP 340 press tool from RIDGID joins copper and stainless tubing 1/2 to 4 inches in diameter as well as PEX tubing and black iron pipe 1/2 to 2 inches in diameter. The tool is compatible with all RIDGID Standard Series pressing jaws and attachments. Features include bolt sensor technology, four-second cycle time, ability to rotate jaws up to 270 degrees to

access tight spaces and the ability to operate in temperatures from 15 to 122 degrees F. 440/323-5581; www.ridgid.com.

DITCH WITCH RIDE-ON TRENCHER

The RT30 ride-on, dedicated trencher from Ditch Witch has a 24.8 hp Kubota diesel engine and can dig a trench up to 8 inches wide and 42 inches deep. The 42-inch boom provides a 36-inch cover depth. 800/654-6481; www.ditchwitch.com.



HAMMERHEAD CIPP EPOXY SYSTEM

Winter Blend, Standard Blend and Summer Blend 100 percent solids epoxy resin systems from HammerHead Trenchless Equipment are designed for use with

HydraLiner CIPP lateral lining. The resins have a transparent blue base and transparent yellow hardener that creates a uniform green color when properly mixed. The combination resin works with felt or fiberglass liner material. The fast-curing Winter Blend is made for cold conditions or short applications. Standard Blend has an increased working and cure time. Summer Blend is made for long or large-diameter pipe runs and high-temperature applications up to 200 degrees F. 800/331-6653; www.hammerheadtrenchless.com.

RADIODETECTION VIDEO SYSTEM WITH BUILT-IN BATTERY

The GatorCam 4+ pushrod video inspection range with built-in battery option from Radiodetection, a unit of SPX, adds onboard lithium-ion battery power for a full day's usage. The push-button fuel gauge indicates remaining power, even with the controller switched off. 877/247-3797; www. radiodetection.com.



MILLER TWIN TURBO FALL PROTECTION SYSTEM

The Miller Twin Turbo fall protection system with G2 connector for 100 percent tie-off from Honeywell Safety Products attaches to harness webbing below the back D-ring. The connector has a webbing retainer



clip that can accommodate thicker harness webbing designs and is available in 6- and 2.3-pound TurboLite 9-foot personnel fall limiter models. The connector meets all applicable standards, including OSHA, ANSI and CSA. 800/873-5242; www.millerfallprotection.com. ©

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TIGRE SELECTS WINNER IN WORLD **RELATIONSHIP PROGRAM DRAWING**

Karen Bruwer of Pipe Plus in Leominster, Mass., was the winner of Tigre USA's Tigre World Relationship Program drawing. Bruwer received an all-expense-paid trip for two to Las Vegas. The



Ray McInnis of McInnis Sales presents Karen Bruwer with a trip to Vegas as winner of the Tigre World Relationship Program drawing.

Tigre World program provides customers with market news, price updates and product launch notices.

GORMAN-RUPP NAMES RENTAL SALES MANAGER

Gorman-Rupp Co. promoted Jamie Schoenian to rental sales manager. He will be responsible for sales, service, aftermarket, technical support and product forecasting between Gorman-Rupp and National Rental accounts.



VAC2GO HIRES EXECUTIVE, WAREHOUSE ASSISTANTS

VAC2GO hired Kate Wetherby as an executive assistant for its LaGrange, Ky., office. She will manage day-to-day operations. David Miles was hired as warehouse assistant for the South Carolina office.

SMITHERS QUALITY ASSESSMENTS NAMES PRESIDENT

Smithers Quality Assessments (SQA) promoted Jeanette Preston to president. She will oversee SQA's global business, including operations based in Akron, Ohio, and Suzhou, China. Preston joined the company in 2007 as director of operations.



NATIONAL PUMP & COMPRESSOR LAUNCHES WEBSITE

National Pump & Compressor, an industrial equipment rental, sales and service provider, launched the website www.myhurricanesupport.com to provide awareness of the emerging disaster recovery business. The site is intended to provide businesses and municipalities with information on how to prepare for a hurricane, history of areas affected by hurricanes and how the company can help in the event of a hurricane or natural disaster. It includes information on industrial pumps, hoses, generators and other flood relief and dewatering equipment.

NEXTRAQ EXPANDS ATLANTA SALES CENTER

NexTraq, a GPS fleet tracking and asset management company, expanded its Atlanta sales center, adding 12,000 square feet of office space and increasing its staff of employees by 33 percent. The company also was named a Top Workplace in Atlanta and American Business company of the year finalist.

MONGOOSE JETTERS LAUNCHES WEBSITE

Mongoose Jetters launched its redesigned website, www.mongoosejetters. com. The site contains product specifications, features and options, as well as enabling customers to access the company's financing programs and service options, and browse new and pre-owned equipment.

ELECTRO SCAN, CD LAB FORM PARTNERSHIP

Leak detection company Electro Scan and Swiss-based CD Labs AG, provider of sewer pipeline assessment software, formed a global partnership that includes development of a WinCan data module. The unit, set for release in 2014, will import, store and display data downloaded from Electro Scan's Critical Sewers Cloud app.

TRELLEBORG RECEIVES GAS COMPRESSION **FACILITY CONTRACT**

Trelleborg Offshore & Construction was awarded a contract to provide Akler Solutions with high-performance subsea insulation for use on the Asgard subsea gas compression facility. Trelleborg's Vikotherm II insulation material will be used on 1,968.5 feet of piping, forming part of the compression system, located on the Halten Bank in the Norwegian Sea, approximately 124 miles from Norway.

FRANKLIN ELECTRIC REBRANDS CERUS INDUSTRIAL

Franklin Electric rebranded its latest acquisition, Cerus Industrial, as Franklin Control Systems. Based in Hillsboro, Ore., the company will focus on the design and production of electronic drives and controls for water pumping and industrial systems. Products made by Franklin Control Systems will carry either the Franklin Electric or Franklin Control Systems brand.

PIPE RESTORATION TECHNOLOGIES **RECEIVES CANADIAN PATENT**

Pipe Restoration Technologies was awarded Canadian Patent 2707023 by the Canadian Intellectual Property Office. The patent focuses on methods and systems of ePIPE technology that provide for an abrasive cleaning method and placement of an internal barrier coating and leak sealing process.

JETTER DEPOT REDESIGNS WEBSITE

Jetter Depot redesigned its website, www.jetterdepot.com. The site features new and used sewer and drain cleaning equipment for jetting and jet/vac machines, as well as customer-submitted photos of the company's equipment in use.



Pictured (from left) are Kent Peterson, Fluid Imaging Technologies president and CEO, Barry Godowsky, Harry Nelson, Becky Metivier and Rob Chatfield.

FLUID IMAGING EXPANDS MANAGEMENT TEAM

Fluid Imaging Technologies expanded its senior management team, naming Becky Metivier vice president, marketing, and Barry Godowsky, vice president, industrial sales. Rob Chatfield was promoted to vice president, chief financial officer, and Harry Nelson was promoted to vice president, aquatic markets. Metivier will be responsible for the marketing team, including global marketing strategy, brand management and corporate communications. Godowsky will be responsible for developing new business. Chatfield, formerly serving as CFO, will be responsible for the company's overall economic strategy. Nelson, formerly director of aquatic sales and marketing, will be responsible for leading the aquatics division. c



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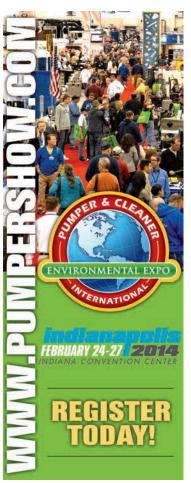


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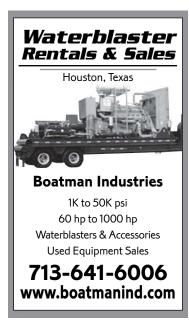
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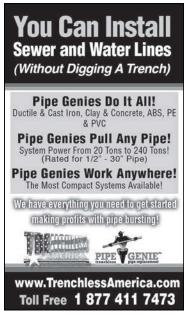


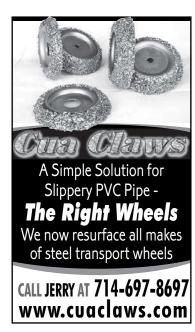










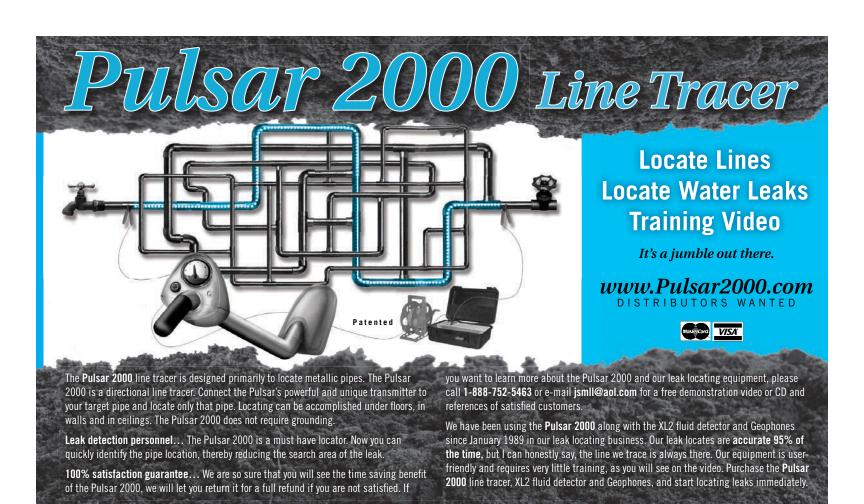


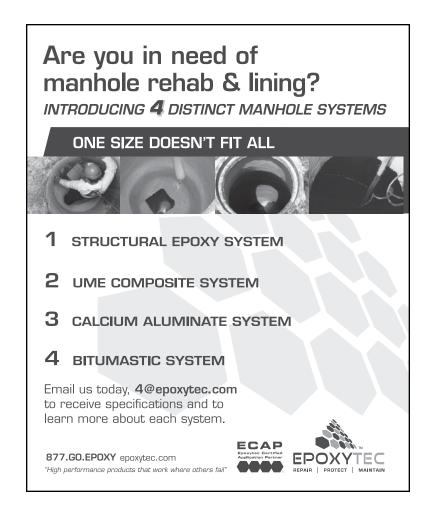


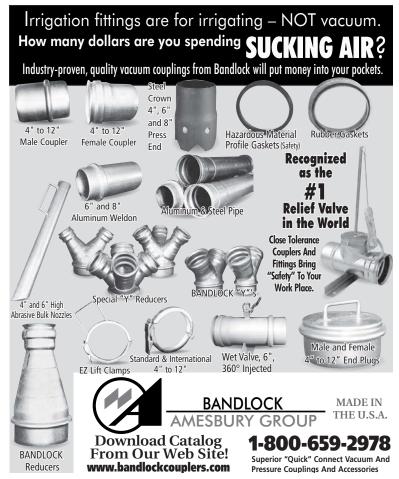


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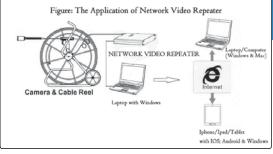
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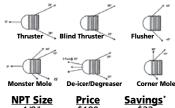




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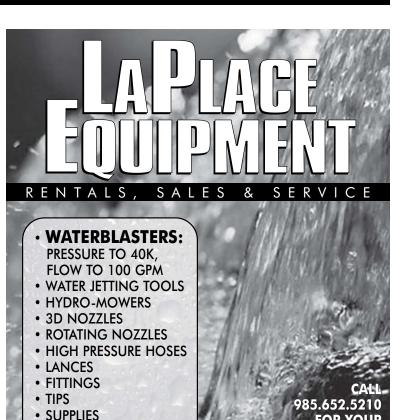


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SECURED CREDITOR AUCTION: Environmental Performance Systems, Medley Florida Specialty Contractor. Online Auction closes October 8th @ 10:00 AM EDT. Highlights include: (2) 1997 International/ Vac-Con jetter pumper trucks, 2007 video inspection van with CUES sewerbot system, 2007 Freightliner/Schwarze sweeper, 2005 Sterling/Elgin sweeper, 2001 Freightliner vacuum truck, more. Blackbird Asset Services, LLC. David Fiegel, Auctioneer AU3903. Go to www.blackbirdauctions.com for details and to register to bid. (C10)

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2005 AquaTech CB-10 combination sewer cleaning truck: 624 Roots PD vacuum blower, General pump 35gpm @ 2,000psi, 10-yard debris body. Mounted on a 2005 Sterling chassis, 28,153 miles. Sold as is - No warranty. www.khtrucks.com 972-938-1905. (C11)

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DRAIN/SEWER CLEANING EQUIPMENT



2009 Sterling Vac-Con VPD3616LHAEN S\N: 09085083. Bean jetting pump. Roots 824 RCS blower. 16-yard debris tank. ISX Cummins diesel. Push-button automatic. 54,587 miles. 66,000 GVW. Hendrickson spring.

972-938-1905 TX khtrucks.com

C11

2003 Sterling B-10 Aquatech. General jetting pump 83gpm @ 2,000psi. Roots 624 PD blower. Cat diesel, 83,998 miles, auto transmission, Hendrickson spring, 10-yard debris tank. www.khtrucks.com 972-938-1905. (C11)

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General Wire models J-3055, J-3080, and J-2000; Spartan #717; Electric Eel gas jetters. The Cable Center: 800-257-7209(CBM)

2006 Sterling Vac-Con V390LHAD: 3-stage fan, 9-yard debris tank, Triplex pump. Cat diesel, Push-button auto. 41,000 GVW. www. khtrucks.com 972-938-1905. (C11)

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1999 O'Brien Trailer Jet with 165 original hrs. 4-cylinder diesel engine, 800-gallon plastic water tanks, Myers 65gpm 2000psi pump, 500 feet of new jet hose, new white paint. Pictures at www.empireequip.com \$23,500.714-639-8352 (CBM)

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2009 Ford F-550 PipeHunter 7844TMV. 700-gallon Polly water tank. 1/2" jet hose. Giant jet pump 14.2gpm @ 4,000psi. Tuthill blower. John Deere rear engine. 294 hrs. 139,878 miles.

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СВМ

2001 Sereco water jet on an International 4900 tandem axle, 100gpm, 2,000psi pump. 3,000-gallon water tank. 600 feet of jet hose. Was a city-owned unit. Price \$57,500. www.empireequip.com 714-639-8352. (CBM)

2006 GMC TC6500 cab and chassis with Pipe Hunter trunk mounted jetting unit. 3,000 psi @ 50 gpm with a 1,000-gallon water tank, rear mounted hose reel with Jet Eye Camera System, 6,800 original miles, like new. \$89,000 sale price. (Stock #13234V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).

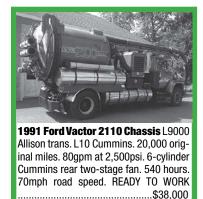
Jetter reel off of Vactor 2100. Newer hose. Make offer. Contact dhauck@jmfunderground. com or call 717-697-4029

2001 Vactor 2115: Very low miles on reman engine. Lots of new parts. 2894@comcast.net

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1999 Vactor Model 2110: Freightliner FL80 chassis with Cat engine, 18K front, 23K rear, Road Ranger transmission, John Deere auxiliary engine, single fan, extendable boom, 80gpm Rodder pump, 1" hose, aluminum tool boxes, boom lights, air-purge system, etc..... \$65,000

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2006 International Vac-Con: 80 gpm, 3-stage fan, 12-yard debris tank, 73,000\$135,000

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2002 Vactor Model 2110PD on an International 7400. 61,650 miles. 80gpm, 2,500psi. Roots 824 blower. 600 feet of new jet hose. Was a city-owned unit. Price \$120.000. Pictures at www.empireequip. com. 714-639-8352. (CBM)

2007 Vactor Model 2112 on a Sterling LT7500. 50,876 miles. Two-stage fan. 65gpm, 2000psi pump. Was a cityowned unit. Price \$157,500. Pictures at www.empireequip.com. 714-639-8352. (CBM)

1995 L8000 Vac-Con including 3-stage fan. 80gpm water pump, 12-yard debris tank. Muni trade - Everything works. Asking \$18,000. Contact Dave @ 262-951-8979. (C11)



2001 Sterling LT-7500: 3126 CAT, Allison auto., 40,000lb, rears, 20,000lb, F.A. Ex-municipal truck, 40,100 miles. Vac-Con VPD-4214LHA iet vac. 1.624 hours, 3.9 Cummins, Roots 827 PD blower, 80gpm/2,000psi water pump. Excellent Municipal Truck.

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C10



2005 Freightliner Condor: Vactor 2110 Jet-Vac w/PD blower, ISM Cummins, Allison auto., 46,000 Rears, 20,000lb. F.A. Ex-Utility Company Truck.

814-696-4343, PA

1998 Vac Con V390SHA 1998 International Vac Con with 21,519 miles, 43,000 GVW. 98 International engine, John Deere pony motor with only 753 hours. Three-stage fan unit, 9-yard debris tank. 1,000-gallon fresh water. 600 feet of 1" jet hose and an 80gpm @ 2,500psi. Jeff Brooks 317-258-4900 (C11)

2003 Clean Earth Jet Vac. Mounted on 2003 Freightliner FL112 chassis. 1,500-gallon aluminum water tanks. 10-yard galvanized debris tank. 80-gpm water pump, hydraulic drive variable water flow. Roots 824 vacuum system. Telescoping boom, 420-gpm liquid pump off system. Call Bruce 608-575-7060. E-mail nse@hughes.net Pictures at www.northernsewerequipment.com Price \$72,000 (C10)

2003 Vactor 2110PD on a Sterling LT7500. Pump 80 apm. 2.500 psi. Roots 824 blower. 1,500 gallon water capacity. New paint. Was a city-owned unit. Pictures at www.empireequip.com. Price \$129,900. 714-639-8352. (CBM)

Vac-Con V390LHA combination unit with Roots 827 blower, 1999 International Model 2554 cab and chassis. (Stock #3918C) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).

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Perma-Liner Top Gun F-18 Inversion Unit: Used only one time. Comes with five 6"-18" inversion heads, Viper steam-cure system with steam control unit and all related hoses. Paid \$138,500. Will sell for \$99,000 or best offer. For more photos visit Industrialwasterecovery.com.

> Call 616-719-5595 MI C10

CLEARLINE LASER PIPE PROFILERS: Two Models - LAS50 and LAS50T. Never used, must sell. Wesco Infrastructure Technologies, Ted Anderson, 310-808-1290 Ext. 304 (C10)

Complete wet-out set up for CIPP. Includes conveyor, roller tables, scale and two 40,000lb. tanks. Email for photos. Make offer. Contact dhauck@jmfunderground.com

Complete Lining System (3",4",6",8") - Inversion gun, rollers, etc. Hot water boiler system & ambient cure system. Great start-up kit, used regularly. \$29,000. Please contact Kevin: 303-591-3191

SECTIONAL POINT REPAIR EQUIPMENT: One 6"-10"x10'L: \$950. One 8"-12"x8'L: \$980. One 12"x18"x10'L: \$1,425. One 18"-24"x8'L: \$1,650. Two rope reels w/500': \$250 per reel. One air tank w/gauges: \$225. All the equipment is in good shape. Will sell separate or all together. 843-556-8217 or awilson@prolateralsc.com. Ask for Allen.

One trade-in model of Pipe Genie heavy-duty, pipe bursting equipment. Excellent condition, looks new, 30-ton, 100 feet cable, full 2-year warranty. 877-411-7473.

DANCUTTER DC70 complete robotic cutter package. This unit has everything and needs nothing. Comes with 160 ft. of hose, tools and new carbide cutter heads. Also comes with additional forward and angle cutter attachments. This cutter is a workhorse. Compare new at \$80,000. THIS UNIT IS PRICED TO SELL AT \$28,500 and won't last. 561-722-1689 (C10)

MAXLINER PIPELINING PACKAGE: Comes with lining gun, 3" to 12" attachments, hot-water curing system, rollers and all hoses with control boxes. This unit is a money maker and can perform long runs as opposed to a drum inversion unit. THIS PACKAGE IS PRICED TO SELL AT \$14,000. 561-722-1689

Permaliner inversion system, complete installation system purchased 2012. Like new condition. System includes materials and multiple inversion heads from 3" to 6". \$26,500. 626-221-5379 ask for Joel. (C10)

POSITIONS AVAILABLE

Vactor Operators Wanted - Experienced pipe cleaning operators for NYC/Long Island based company. Must have knowledge of sewer systems with ability to read drawings & project prints. Mechanical background a plus. Clean CDL a must, tanker endorsement a plus. NYC/Long Island prevailing wages paid. Please forward resume to: pipedr1@gmail.com

Pipeline Inspection/Robotic Cutter Operators Wanted - NYC/Long Island based company seeking ambitious, energetic pipe inspection truck operators with a minimum of two years experience. Must have knowledge of sewer systems, ability to read project prints and drawings as well as a strong understanding of computers, PACP credentials a plus. NYC/Long Island prevailing wages paid. Please forward resume to: pipedr1@gmail.com.

Extremely busy underground utility contractor is in need of qualified individuals to join our team. We have multiple projects in the Southeast; including Florida, North Carolina and South Carolina. We specialize in manhole, lift station & sewer rehabilitation, protective coatings, and pipe cleaning, televising & laser profiling. We offer competitive pay based upon experience. Applicants must have a valid driver's license, a minimum of 3 years' experience in the field they are applying for and be willing to travel. Lodging and per diem are provided when working out of town. This is a great opportunity for the right individuals to join a rapidly growing company with room for advancement, DFWP, EOE Positions available include: - Manhole Rehab Technicians - Vac Truck Driver / Operators (Must have a clean and valid CDL License) -CCTV Operators - Laborers. Please fax your resume to 813-626-0777 or you may email it to shilson@vac-vision.com

Florida-based utility contractor is expanding. Seeking experienced TV/Grout Operators, CIPP Lining Technicians for a new crew, all positions. Clean CDL B w/Tanker. 3 years CIPP experience reg. w/references. EEO/AA, drug and alcohol-free workplace. USDOT regulated company. Call 727-528-1998 for further details, e-mail resumes to itvincorporated@aol.com

GapVax, Inc., a nationally recognized manufacturing business, is seeking a talented, highly motivated individual to fill a full-time Sales Position in the Midwest (lowa based preferred) region. GapVax is the leading manufacturer of industrial and municipal vacuum units and hydroexcavation units in the United States. We provide the most reliable, comprehensive, and efficient mobile vacuum units in the industrial and municipal markets. Specifications of the position are listed on our website, www.gapvax.com, click on the Now Hiring link in the left hand column. Send resumes to Lthomas@gapvax.com or 575 Central Avenue, Johnstown, PA 15902. (CBM)

PUMPS

Buy & Sell all makes and models, new & used vacuum pumps & high pressure water pumps, and good used replacement parts. Call for an inventory sheet and save. www. VacuumSalesInc.com, (888) VAC-UNIT (822-8648).

Honda model WP40X, 8 hp, 4" with hoses. Honda 4 hp, 2" pump with hoses. The Cable Center: 800-257-7209. (CBM)

New, never used Myers D65-20 water pump. List price: \$17,992. Sell for \$9,750. New Rockford power take-off part number 4-11182 - \$700. 714-381-4141. (CBM)

RENTAL EQUIPMENT

Liquid vacs, wet/dry industrial vacs, combination jetter/vacs, vacuum street sweeper & catch basin cleaner, truck & trailer mounted jetters. All available for daily, weekly, monthly, and yearly rentals. VSI Rentals. LLC. (888)VAC-UNIT (822-8648) www.vsirentalsllc.com. (CBM)

SEPTIC TRUCKS



1999 International 7400: 1999 International 2554 with a Vac-con model V312/LHA 1300. 10-ft. telescoping boom, articulated hose reel, new 3-stage fan. Rebuilt pump 60gpm @ 2000psi. 69,458 miles\$80,500

1-800-349-8000

C10

SERVICE/REPAIR

Dynamic Repairs - Inspection Camera Repairs: 48 hour turn-around time. General Wire, Ratech, RIDGID, Electric Eel Mfg, Gator Cams, Insight Vision, Vision Intruders. Quality service on all brands. Rental equipment available. For more info call Jack at 973-478-0893. Lodi. New Jersev.

www.servicewithasmile.com Sewer Cam Reel and Camera Repair: Authorized for General Wire. Ratech. Vision & Ridgid. Quality service on all brands. Need more info? Just call Terry or Stan. Electronic Repair Co., Birmingham, AL 35206. 205-836-0454; email: part@ servicewithasmile.com. (CBM)

TOOLS

T&T Tools: Probes, hooks. Probes feature steel shafts with threaded and hardened tips. The insulated Mighty Probe™ tested to 50,000 volts. **Top Poppers**™ open manhole covers easily. Free catalog, www.TandT tools.com. Phone 800-521-6893. (CPBM)

Ritchie Yellow Jacket Recovery System & BULLET 7 cfm pump. The Cable Center: 800-257-7209. (CBM)

Bosch Brute hammer drill with cart irons. The Cable Center: 800-257-7209.

RIDGID model #300 with stand. RIDGID tristand vises. RP 330 ProPress kit. The Cable Center: 800-257-7209. (CBM)

TV INSPECTION



great condition. Has clear, crisp picture. Kennesaw. Ga......\$7.862.58

Contact Diagnostic Resources 678-594-0731

Two (2) used Ratech EC-200 camera systems, color, DVD - \$3,800 each; One (1) used Ratech color camera reel, \$2,000; One (1) used Ratech MiniCam reel. B/W. \$2.400: One (1) used Ratech MiniCam, color, \$2,800. One-year old. Call Marty at 314-974-3048 or 314-974-8196.

Aries Camera Inspection Van. Single conductor, Ford E-450 cut away, Onan 7.5kw, Win-Can, camera with tractor, ready to inspect pipe. Serviced regularly. 2894@comcast.net CUES Equipment for Sale: CUES Pipe Ranger, OZ2 camera with desk controller. Mudmaster with lift, Mudmaster power supply. CUES Lamp 1 lateral launcher complete - 2 available. CUES double data. CUES Pro Data. 2000 CUES E-350 Gas 14-foot box, Aerocap, Cobra Data. CUES TV Seal truck diesel - 11K miles. City-owned. Contact Alan Grant, Cobra Technologies 800-443-3761. (C11)

2003 Ford F350 V-10 sewer line inspection truck with Aries equipment. Two cameras. 972-938-1905. www.khtrucks.com (C11)



6.0-Liter V8 Super Duty Turbo Diesel. It has 28,686 miles on it. Comes with a CUES Lateral Launch Camera System. For sale or rent.

Call Richard at 502-803-5570 KY

C10



James Long 253-709-5082 WA jamesl@solidwastesystems.com

2005 RST CCTV inspection trailer. 14' enclosed RST camera system, refurbished. Cable reel, computer, new camera & 6-wheeldrive tractor. Pricing based on equipment & tooling added. Call for quote. Jay 317-714-1107 Jeff 317-258-4900 (C10)

MAINLINER Buying & Selling Used Equipment. CANADA & USA PEARPOINT MAINLINE EQUIPMENT ONLY. Will buy complete Pearpoint trucks. Will buy your old system. Do you need used parts? 399, 599 Reels; 420, 448 Tractors; 494 Digital and Zoom 420 light heads. Call: 1-800-265-4298 or mainliner2075@hotmail.com (C03)

Lots of Aries camera equipment for sale:
1 Pathfinder Saturn system with 1 TR3300
and 1 TR3400 with large line kit, PE3500
zoom camera and full set of tires, reterm kit and misc nuts and bolts \$60,000.
1 Pathfinder Saturn system with 2 TR3300
tractors, PE3300 non-zoom camera and a
set of tires \$25,000. 1 2 PE3600 with pathfinder adapter \$14,000. Package deal for
everything. Call or email Kyle 515-360-8582
kyle@accujetiowa.com (C10)

Used and rebuilt camera kits in stock: RIDGID Mini Compact, Mini Color, Standard Self-Leveling, General Gen-Eye I, II and III, Aries Seeker, and SRECO kits. The Cable Center: 800-257-7209. (CBM)

CUES K2 SYSTEM: Steerable Compact Pipe Ranger (CPR), OZ3 camera, 1000' gold cable, auto cable reel, CPU, CCU, wireless controllers, six different wheel sets, two different wheel spacer sets, tool and manual. Like new (app. 40 hours) at 20% off list. Call 866-936-8476 or emailoffice@envirosight.com.(CBM)

1998 CUES Mainline TV System: GMC Savanna 3500, CUES with Pro-Data on-screen titler, Honda generator, Sony combo DVD/VHS, 1,700' of M/C cable, pan & tilt camera with shorty transporter. \$29,500. 608-835-7767, WI. (CBM)

VACUUM EQUIPMENT

2004 Vac-Con VPD3690LHA: Roots 824 blower, Bean 80gpm @ 2,000psi jet pump. 9-yard debris tank, 1" jet hose. Cat diesel, push-button auto transmission, 41,000 GVW. www.khtrucks.com 972-938-1905. (C11)

2003 Ford F350 V-10 sewer line inspection truck with Aries equipment. Two cameras. 972-938-1905. www.khtrucks.com (C11)

2002 International Guzzler Classic vacuum truck. Roots blower. 1,942 hours. 30,422 miles. Cat Diesel. Hendrickson spring. 64,000 GVW. www.khtrucks.com 972-938-1905. (C11)

1998 Keith Huber King Vac Liquid Ring Vacuum Truck, wet/dry vacuum capability, full-open rear door, tank hoist, 9,450 hours. Mounted on a 1998 Mack RD690S chassis, 5-speed Maxitorque transmission, Camelback suspension, Mack 300 HP diesel engine, A/C, 60,000 GVW. www.khtrucks.com 972-938-1905 (C11)

VACUUM LOADERS

2013 Western Star cab and chassis, Power Vac 5300, 3,250 U.S. gallon, carbon steel DOT 407/412 regulations vacuum tanker with a Hibon PD blower, 5300 SCFM with vacuum to 28" mercury. Dump Type with full open rear door, and a Presvac PVB 750 vacuum-pressure pump. (Stock #13518V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648). (CBM)

SuperSucker Vac Trucks: 2001 Model 5027-139,946 miles, Roots 1021 blower, 6,789 hours. 2002 Model 5227- 110,522 miles, Roots 1021 blower, 709 hours. Wisconsin 920-779-9955. Photos and records available. craig@midvalleyindustrial.com (C10)

WANTED

Wanted to Buy: Vactor 2100's and late model Guzzlers. Cash. 800-336-4369. (CBM)

I'll buy your sewer cleaner, running or not. Any brand, any make. Phone 305-509-0467. Email: info@trucksofmiami.com. (C12)

WATERBLASTING

Gardner Denver T-375M: Bare Shaft pump. Gardner Denver T450M Bare Shaft pump NLB 20-200: 12 gpm @ 20,000 psi. Gardner Denver LC-1500: 390 gpm max, 15,000 psi max. NLB 36-200 6 gpm @ 36,000 psi. HT-150S 25 gpm max 10,000 psi max, Shell Side Machine, Wheatley 165: 30 gpm @ 10,000 psi, Wheatley 165: 17 gpm @ 20,000 psi. Wheatley 125 with aluminum bronze fluid end. Boatman Ind. 713-641-6006. View @ www.boatmanind.com. (CBM)

WATER JETTING EQUIPMENT: We sell, repair and retrofit water blasters. Visit us at: www. waterjettingequipment.com or phone 714-259-7700. (CBM)



HP Hoses & Fittings for Sale: Seventeen (17) 1" HP hose 50' long. Two (2) 1" HP hose 25' long. Thirteen (13) female/male hose HP fittings. Ten (10) male hose HP fittings. Great condition. Asking \$550 for hose with fitting or we can sell separately. Located in Niagara Falls, NY.

Please call 716-773-1167 NY skozlowski@nationalvacuum.com

2011 NLB 20305D: 20,000psi/23gpm, 1,245 hours. Well maintained. 225F pump, Cummins C8.3 diesel.\$79,000 0B0

713-725-9047, TX mark@cleanserveinc.com C10

40,000 psi Sapphire Nozzles, UHP hoses & replacement parts. Excellent quality & prices. 772-286-1218, info@alljetting.com, www. alljetting.com. (CBM)

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I remember a call I got a little while back. This customer had an UnderTaker and had it on a pipe replacement job, and his client happened to be holding an outdoor event the day he was there to do the job. On top of that, it wound up he needed help with a part unexpectedly or else he was going to have to go ahead and dig up the lawn.

But I was close enough that I was able to get there and get him what he needed without ever disrupting his client's event.

Tough Customer Preferred Product: The UnderTaker."

Lets you replace 4" – 6" pipes with minimal disturbance to trees, landscaping, streets and sidewalks. A compatible water-line slitter for replacing galvanized or copper water lines is also available.